

The impact of personality variables on entrepreneurial orientation

Abstract

Background: Numerous studies suggest that a relationship exists between certain personality variables and Entrepreneurial Orientation (EO). The aim of this study is to conduct a predictive study of personality variables that may influence Entrepreneurial Orientation. To do so, we use the following indicators: Big-five personality, Hardiness, Self-esteem, Self-efficacy, Impulsivity, Pro-Activeness, Curiosity, Internal Locus Control, Optimism, and Pessimism. **Method:** Participants in the study were 883 workers selected through non-probabilistic sampling and the data collected were processed with the SPSS 25.0 program. **Results:** Our results determine the predictive capacity of personality variables, curiosity, and optimism in relation to EO. **Conclusions:** We conclude that EO can be predicted through certain variables. This study contributes to wider knowledge of Entrepreneurial Orientation and the empowerment of variables that influence it.

Keywords: Entrepreneurial orientation; Personality; Self-esteem; Self-efficacy; Impulsivity; Pro-Activeness; Curiosity.

20 **The impact of personality variables on entrepreneurial orientation**

21

22 **1. Introduction**

23 Miller (1983) coined the term entrepreneurial orientation (EO). Later, Olson (1985)
24 defined an entrepreneur as a person who is oriented to the future and able to take risks to
25 become involved in identifying and developing new ideas. Some of the characteristics
26 commonly associated with entrepreneurs are competitive aggressiveness, autonomy, a
27 capacity for innovation, proactivity and a willingness to take risks (Bolton & Lane, 2012;
28 Covin & Slevin, 1989; Fillis & Rentschler, 2010; Rauch, Wiklund, Lumpkin, & Frese, 2009;
29 Robinson & Stubberud, 2014; Yar Hamidi, Wennberg, & Berglund, 2008).

30 Entrepreneurial Orientation is one of the most researched topics in entrepreneurship
31 today. According to García-Villaverde, Rodrigo-Alarcón, Parra-Requena and Ruiz-Ortega
32 (2018), it is a key factor in generating differentiation, improving adaptation to environmental
33 changes and market trends, developing better solutions for competitors and weakening their
34 ability to compete and respond to the future actions of a company. This is because
35 Entrepreneurial Orientation, at both the organization and individual levels, has been
36 associated with high performance (Robinson & Stubberud, 2014).

37 Salinas and Osorio (2012) define entrepreneurship as a set of attitudes and behaviors
38 that give rise to a personality profile that is oriented towards self-confidence, creativity,
39 innovation capacity, a sense of responsibility and risk-taking. The personality traits
40 individuals exhibit are therefore important when determining entrepreneurial behavior
41 (Sánchez-García, 2010). Entrepreneurs are found to have certain personality traits that
42 predispose them to act in this way. The most common traits are Locus of Control, self-
43 efficacy, risk, and proactivity (Boada-Grau et al., 2016; Covin & Slevin, 1989; Cromie, 2000;
44 Vecchio, 2003).

45 Tan (2001) concludes that entrepreneurs tend to be over-optimistic when analyzing
46 environmental information, especially when they are not familiar with the problem and/or
47 there is great uncertainty. This over-confidence is what stops them feeling overwhelmed by
48 the difficulties they encounter (Busenitz & Barney, 1997). If entrepreneurs had a lower level
49 of confidence in their decision-making capacity, therefore, most new companies would never
50 be launched (Tan, 2001). In line with other authors (Duarte & Ruiz, 2009; Mora, 2011; Shane
51 & Venkataraman, 2000), Núñez-Ramírez, Mercado-Salgado and Madrigal-Torres (2014)
52 found a positive association between self-esteem and entrepreneurial skills.

53 Another aspect is curiosity. Robinson (2008) indicates that entrepreneurs need to be
54 curious, to be challenged, and therefore to adapt to change. This motivates them to seek new
55 opportunities. Business curiosity is positively related to the growth of the company (Jeraj et
56 al., 2015). Companies must therefore be receptive to the entrepreneurial mentality and
57 creativity of their workers, fostering a positive attitude towards innovation and risk in the
58 action of entrepreneurship (Chung & Gibbons, 1997; Gupta et al., 2018).

59 Wiklund, Yu, Tucker and Marino (2017) show that the search for sensations and lack
60 of premeditation generally have a positive influence on entrepreneurship. They conclude that
61 impulsivity is positive for entrepreneurial orientation and that the search for sensations is
62 related to curiosity (Collins et al., 2004; Voss & Keller, 1983; Zuckerman, 1994).

63 The term impulsivity is often used as the tendency to respond in a hasty, abrupt or
64 premature manner (Dickman, 1993). It has been found that a hasty response may or may not
65 be adaptive to certain situations, so a person is expected to act abruptly and without taking time
66 to analyze the situation, for example when there is imminent danger and when quick decisions
67 are required (Dickman, 2000). Dickman (1990) assumes that impulsivity is not always negative
68 but that impulsive people tend to respond quickly and inaccurately. This can sometimes be a
69 source of difficulties but can sometimes be beneficial. For this reason, the above author

70 proposes two different features: functional impulsivity and dysfunctional impulsivity.
71 Impulsivity is a tendency to act with little foresight and can be functional or dysfunctional
72 (Dickman, 1990, 1993, 2000) depending on its adaptive content.

73 Wiklund et al., (2017) found that hyperactivity is positively associated with
74 entrepreneurship due to the impulsivity trait entrepreneurs possess. The search for sensations
75 and the lack of premeditation generally have a positive influence on entrepreneurship (Wiklund
76 et al., 2017) because the uncertainty of the business world leads to anxiety, worry,
77 procrastination and inaction among most people (McMullen & Shepherd, 2006; Paulus, 2007).

78 Litman and Jimerson (2004) indicate that interest (I) and deprivation (D) reflect
79 different types of curiosity that correspond to very different reasons for acquiring new
80 information. Curiosity-I (Cu.I) refers to the anticipated pleasure of discovering new things
81 and is associated with the acquisition of knowledge simply because of the intrinsic joy this
82 produces (domain-oriented learning). Curiosity-D (Cu.D) is conceptualized as a ‘need to
83 know’, for which the correctness, accuracy and relevance of the desired unknown information
84 are very important (performance-oriented learning). Cu.D is related to reducing uncertainty
85 and eliminates undesirable states of ignorance (Litman, 2005).

86 In this paper we identify which aspects of personality are presented as predictive
87 variables of Entrepreneurial Orientation using the following indicators: Extraversion (OP. Ex),
88 Emotional Stability (OP. EE), Responsibility (OP. CO), Agreeableness (OP. Ag), Openness to
89 experience (OP. OE), Control (HS.Con), Commitment (HS.Im), Challenge (HS.Ch), Self-
90 esteem (SES), Self-efficacy (GSE), Functional Impulsivity (DII.F), Dysfunctional Impulsivity
91 (DII.D), Pro-Activeness (PA), Curiosity-I (Cu.I), Curiosity-D (Cu.D), Internal Locus Control
92 (ILC), Optimism (LOT.OP) and Pessimism (LOT.PE).

93 Our hypotheses are as follows:

94 **Hypothesis 1:** If Autonomy (EO-Auto) is influenced by Personality variables, then a good
95 prediction of Autonomy (EO-Auto) can be made from a model that incorporates these
96 predictors.

97 **Hypothesis 2:** If Innovativeness (EO-Inno) is influenced by Personality variables, then a good
98 prediction of Innovativeness (EO-Inno) can be made from a model that incorporates these
99 predictors.

100 **Hypothesis 3:** If Risk-Taking (EO-AsRi) is influenced by personality variables, then a good
101 prediction of the Risk-Taking (EO-AsRi) can be made from a model that incorporates these
102 predictors.

103 **Hypothesis 4:** If Competitive Aggressiveness (EO-ComAg) is influenced by Personality
104 variables, then a good prediction of Competitive Aggressiveness (EO-ComAg) can be made
105 from a model that incorporates these predictors.

106

107 **2. Method**

108 **2.1. Participants**

109 The participants in this study were 883 Spanish and Colombian employees (49% male,
110 51% female). Their average age was 38.88 (SD = 12.52). Their marital status was as follows:
111 married or cohabiting (50.9%), single (36.8%), and divorced/separated/widowed (12.3%).
112 Their levels of education were as follows: primary education certificate or less (1.7%), lower
113 secondary education or professional training I (11%), upper secondary education, professional
114 training II or university entrance exams for mature students (43%), university qualification
115 (44.3%).

116 **2.2. Instruments**

117 The Entrepreneurial Orientation Scale (Lee et al., 2011) evaluates an individual's
118 orientation towards undertaking a professional or business activity. In its Spanish version

119 (Boada-Grau et al., 2016), it has 12 items and 4 factors, and each factor has 3 items. The
120 factors are: 1. Autonomy (EO-Auto) ($\alpha = .71$; for example, “I don’t want any financial
121 support from my parents because I am a grown up now”); 2. Innovativeness (EO-Inno) ($\alpha =$
122 $.70$; for example, “I enjoy working on new things, so I am usually up to date with recent
123 trends and current fashions”); 3. Risk Taking (EO-AsRi) ($\alpha = .72$; for example, “I think that
124 starting up a new venture is the only way to succeed in life”); and 4. Competitive
125 Aggressiveness (EO-ComAg) ($\alpha = .70$; for example, “Even if I launch new ventures and fail
126 over and over again, I will keep on trying until I succeed”). The response format was a 1 to 5
127 Likert scale (1= *totally disagree* to 5 = *totally agree*).

128 The Personality Inventory (OPERAS; Vigil-Colet, Morales-Vives, Camps, Tous, &
129 Lorenzo-Seva, 2013) is based on the Big Five personality traits. It comprises 40 items to
130 which subjects respond using a 5-point scale. This instrument measures Extraversion ($\alpha =$
131 $.86$) (e.g. “8. I perform well in social situations”), Emotional Stability ($\alpha = .86$) (e.g. “9. I
132 often feel down in the dumps”), Responsibility ($\alpha = .77$) (e.g. “16. I leave things half-done”),
133 Agreeableness ($\alpha = .71$) (e.g. “12. Respect for others”), and Openness to Experience ($\alpha = .81$)
134 (e.g. “35. I’m curious about the world around me”). The response format is a 5-point Likert
135 scale (1 = *totally disagree* to 5 = *totally agree*).

136 The Hardiness Scale (Moreno-Jiménez et al., 2001) has 21 items and 3 factors, each of
137 7 items. The factors are: Factor 1. Control ($\alpha = .74$; e.g. "I do everything I can to ensure I
138 control the results of my work"), which refers to the feeling individuals have that they can
139 influence events; Factor 2. Commitment ($\alpha = .79$; e.g. "1. I am seriously involved in what I do
140 because it is the best way to achieve my goals"), which is defined as the tendency to develop
141 behaviors characterized by personal involvement; and Factor 3. Challenge ($\alpha = .83$; e.g. "5. In
142 my job, I am mainly attracted to innovations and new procedures"), which indicates that

143 potentially stressful stimuli are perceived as growth opportunities. The response format is a 4-
144 point Likert scale (1 = *totally disagree* to 4 = *totally agree*).

145 The Rosenberg Self-Esteem Scale (SES; Rosenberg, 1965), adapted by Martín-Albo,
146 Núñez, Navarro and Grijalvo (2007), is a 10-item scale that measures global self-worth by
147 measuring positive and negative feelings about oneself. An example item is “4. I am able to do
148 things as well as most other people”. Scoring options range from 1 (strongly disagree) to 4
149 (strongly agree). The scale is believed to be one-dimensional and averaged to form a reliable
150 scale ($\alpha=.77-.88$).

151 The Spanish version of the General Self-Efficacy Scale (GSE; Baessler & Schwarzer,
152 1996), which was adapted by Sanjuán, Pérez and Bermúdez (2000). This is a one-factor scale
153 made up of 10 items, ($\alpha = .87$); e.g. “8. If I make enough of an effort I can solve most
154 problems”. The response format is a 4-point Likert scale. (*1= False* to *4= true*).

155 The Spanish version of Dickman’s Impulsivity Inventory Scale (DII; Dickman, 1990),
156 which was adapted by Chico, Tous, Lorenzo-Seva and Vigil-Colet, 2003, is made up of 23
157 items and 2 subscales and has a dichotomous (1 = *true* / 0 = *false*) response format. “Factor 1.
158 Functional Impulsiveness” assesses impulsiveness that is beneficial and helps us to adapt to
159 unexpected situations that require a quick response. Factor 1 is made up of 11 items ($\alpha = .77$)
160 (e.g., “5. Most of the time I can concentrate on my work very quickly”). “Factor 2.
161 Dysfunctional impulsiveness” refers to impulsiveness that, instead of helping us, can be
162 counterproductive. It is made up of 12 items ($\alpha = .76$). (e.g. “2. I frequently say the first thing
163 that comes into my head without giving it much thought”).

164 The I/D Curiosity Questionnaire (Litman, 2008), measures desire for knowledge. It
165 consists of 10 items and 2 subscales: 1. Curiosity-I (I-EC); (5 items, $\alpha=.82$; example, “2. I
166 find it fascinating to learn new information”). I-EC stimulates a positive affect diverse
167 exploration, learning something completely new and domain-oriented learning. 2. Curiosity-

168 D (D-EC) (5 items, $\alpha=.76$; e.g. “8. Conceptual problems keep me awake thinking”). D-EC
169 implies reducing uncertainty, specific exploration, acquiring information missing from
170 existing knowledge, and performance-oriented learning. The response format is a four-point
171 Likert scale (1 = Almost Never to 4 = Almost Always).

172 The Pro-Activeness Scale (PA; Jain, Ali, & Kamble, 2015) has 5 items and 1 factor. An
173 example of an item is: "In general, in dealing with the competition, I usually begin an action
174 before responding to the movements of my competitors." Reliability is .79. The scale is a five-
175 point Likert type where 1 means “I completely disagree” and 5 means “I completely agree”.

176 The Internal Locus of Control (Jain, Ali, & Kamble, 2015) has 10 items and 1 factor.
177 An example of an item is: "My life is determined by my own actions". Reliability is .65. The
178 scale is a five-point Likert type where 1 means “I completely disagree” and 5 means “I
179 completely agree”.

180 The Spanish version of the Life Orientation Test revised (LOT-R; Scheier, Carver, &
181 Bridges, 1994) was created by Otero-López, Luengo, Romero, Gómez and Castro (1998). It
182 consists of 6 items (plus 4 other items to make the content less obvious) on a 5-point Likert
183 scale (Ferrando et al., 2002). Three of these items are written in a positive sense (LOT direction
184 Optimism) and three are written in a negative sense (LOT direction Pessimism), which are
185 reverted to obtain a total score that is oriented towards the LOT-Optimism pole. In the original
186 Spanish version, Cronbach's alpha was .78 and the correlation with the original LOT was .95
187 (Otero-López et al., 1998). The scale has a clear structure with two dimensions (Optimism and
188 Pessimism) and the factors are negatively correlated. In addition, all items have an acceptable
189 discriminative power.

190 **2.3. Procedure**

191 Non-Probability sampling (Hernández et al., 2004), also known as accidental-random
192 sampling (Kerlinger & Lee, 2004), was used to obtain the sample. The response rate was

193 approximately 80%. The participants responded voluntarily and did not receive any form of
194 compensation. Confidentiality of the data provided by the participants is fully guaranteed.

195

196 ***2.4. Data Analysis***

197 We began data analysis by using Pearson's correlation coefficients to calculate the
198 correlations between the predictor variables and the criterion variables. We then performed
199 multiple regressions using IBM SPSS Statistics 23 software following the stepwise option
200 (Hinton et al., 2014). With this method, the variables were incorporated into the regression
201 model. There were eighteen predictive variables.

202 The first step involved selecting the eighteen predictive variables that, as well as
203 satisfying the entry criteria, correlated best with criterion variables 1. Autonomy (EO-Auto),
204 2. Innovativeness (EO-Inno), 3. Risk Taking (EO-AsRi), and 4. Competitive Aggressiveness
205 (EO-ComAg). We then used the partial correlation coefficient as a selection criterion. The
206 variables were selected one by one provided they met the entry criteria and possessed the partial
207 correlation coefficient with the highest absolute value. Whenever a new variable was
208 incorporated into the model, the previously selected predictive variables were again evaluated
209 in order to determine whether they satisfied the exit criteria. Any selected variable that satisfied
210 the exit criteria was ejected from the model. The process ended when no more predictive
211 variables satisfied the entry criteria and no selected variables satisfied the exit criteria. The aim
212 was therefore to explain maximum variance with the minimum number of predictive variables.

213 **3. Results**

214 ***3.1. Reliability analysis***

215 Table 1 shows the instruments used. The indices for internal consistency are appropriate
216 since they range from .92 (Efi) to .70 (EO.ComAg and EO.Inno).

217

218 **INSERT TABLE 1 HERE**

219

220 ***3.2. Correlation analyses***

221 The correlational study featured below (Table 2) displays only those correlations
222 between the criterion variables and the predictor variables used in this study. We found a
223 positive correlation between Autonomy and fifteen variables: Extraversion, Emotional
224 Stability, Responsibility, Openness to experience, Control, Commitment, Challenge, Self-
225 esteem, Self-efficacy, Functional Impulsivity, Pro-Activeness, Curiosity-I, Curiosity-D,
226 Internal Locus Control and Optimism. We also found positive correlations between
227 Innovativeness and sixteen predictor variables and between Risk Taking and thirteen
228 predictor variables. We found negative correlations with three variables: Responsibility,
229 Agreeableness and Openness to experience. Finally, we found positive correlations between
230 Competitive Aggressiveness and fourteen predictor variables.

231

232 **INSERT TABLE 2 HERE**

233

234 ***3.3. Multiple regression***

235 We used a multiple regression model to test the effects of predictor variables (eighteen)
236 on criterion variables in connection with Autonomy, Innovativeness, Risk Taking and
237 Competitive Aggressiveness. This statistical technique provides an objective way to evaluate
238 the predictive ability of a set of independent variables (Hair et al., 1999). Tables 3–7 show
239 the data corresponding to the adjusted R^2 indices and significant typified beta coefficients
240 between the criterion variables and predictive variables in this study. Four multiple linear
241 regression models were used for this purpose.

242

243 **INSERT FIGURE 1 HERE**

244 The aim of the first model was to identify the extent to which these predictor variables
 245 were able to predict the criterion variable Autonomy (EO-Auto). Table 3 shows a summary
 246 of this model. Here we can see that the predictor variables were Challenge (HS.Ch), Internal
 247 Locus Control (ILC), Self-efficacy (GSE), Pro-Activeness (PA), Functional Impulsivity
 248 (DII.F), Optimism (LOT.OP), Commitment (HS.Im), Openness to experience (OP. OE) and
 249 Curiosity-I (Cu.I), and explains 24.5% of the variance of the criterion variable. Challenge
 250 (HS.Ch) stands out as the best predictor, accounting for 19.0 % of variance. Among the most
 251 important aspects are the beta coefficient values. These coefficients show that the predictor
 252 variables found to be statistically significant were: Challenge ($\beta = .31$), Internal Locus Control
 253 ($\beta = .24$), Self-efficacy ($\beta = .10$), Pro-Activeness ($\beta = .08$), Functional Impulsivity ($\beta = .08$),
 254 Optimism ($\beta = .10$), Commitment ($\beta = -.13$), Openness to experience ($\beta = .08$) and Curiosity-I
 255 ($\beta = .08$), all of which were significant.

256 There was also a positive correlation with Op.Ex, ($r = .18, p = .01$), Op.EE, ($r = .21,$
 257 $p = .01$), Op.CO, ($r = .11, p = .01$), HS.Con, ($r = .27, p = .01$) and SES ($r = .19, p = .01$).

258

259 INSERT TABLE 3 HERE

260

261 The aim of the second model was to identify the extent to which these predictor
 262 variables were able to predict the criterion variable *Innovativeness (EO-Inno)*. Table 4 shows
 263 a summary of the model in which we can see the predictor variables. Challenge (HS.Ch)
 264 stands out as the best predictor, accounting for 19.0 % of variance. Among the most
 265 important aspects are the beta coefficient values. These coefficients show that the predictor
 266 variables found to be statistically significant were Challenge ($\beta = .27$), Self-efficacy ($\beta = .15$),
 267 Pro-Activeness ($\beta = .14$), Openness to experience ($\beta = .07$), Optimism ($\beta = .10$), Control ($\beta = -$

268 .11), Curiosity-I ($\beta = .10$), Functional Impulsivity ($\beta = .07$), and Extraversion ($\beta = .07$) and
269 Internal Locus Control ($\beta = .07$), all of which were significant.

270

271 INSERT TABLE 4 HERE

272 The aim of the third model was to identify the extent to which these predictor
273 variables were able to predict the criterion variable Risk Taking (EO-AsRi). Table 5 shows a
274 summary of this model in which we can see the predictor variables. Internal Locus Control
275 (ILC) stands out as the best predictor, accounting for 9.0 % of variance. Among the most
276 important aspects are the beta coefficient values. These coefficients show that the predictor
277 variables found to be statistically significant were Internal Locus Control ($\beta = .19$),
278 Agreeableness ($\beta = -.15$), Curiosity-I ($\beta = .13$), Pro-Activeness ($\beta = .09$), Extraversion ($\beta = .13$),
279 Openness to experience ($\beta = -.09$), Optimism ($\beta = .09$), and Pessimism ($\beta = .079$), all of which
280 were significant.

281

282 INSERT TABLE 5 HERE

283

284 The aim of the fourth model was to identify the extent to which these predictor
285 variables were able to predict the criterion variable Competitive Aggressiveness (EO-
286 ComAg). Table 6 shows a summary of the model in which we can see the predictor variables.
287 Internal Locus Control (ILC) stands out as the best predictor, accounting for 16.0 % of
288 variance. Among the most important aspects are the beta coefficient values. These
289 coefficients show that the predictor variables found to be statistically significant were Internal
290 Locus Control ($\beta = .27$), Self-efficacy ($\beta = .14$), Pro-Activeness ($\beta = .10$), Optimism ($\beta = .15$),
291 Agreeableness ($\beta = -.13$), Extraversion ($\beta = .14$), Curiosity-I ($\beta = .14$) and Openness to
292 experience ($\beta = -.08$), all of which were significant.

293 INSERT TABLE 6 HERE

294

295 **4. Discussion**

296 The results presented above are in line with the notion that certain variables have
297 predictive power over factors studied in relation to Entrepreneurial Orientation.

298 The first hypothesis is partially confirmed since the best predictive model for Autonomy
299 is one that includes nine variables, all in a positive way: Challenge, Internal Locus Control,
300 Self-efficacy, Pro-Activeness, Functional Impulsivity, Optimism, Openness to experience and
301 Curiosity-I. Commitment is included in a negative way.

302 These variables generate a positive attitude in employees, who feel capable and whose
303 autonomy is fostered. In this context, Oriol-Granado, Mendoza-Lira, Covarrubias-Apablaza
304 and Molina-López (2017) found that autonomy predicts student performance. On the other
305 hand, commitment to the company slows down employee autonomy, which leads to greater
306 dependence on the other employees in the organization. Bayona, Legaz and Madorrán (1999),
307 for example, found that workers with a high level of commitment felt that they had less
308 autonomy and fewer opportunities for promotion.

309 Our second hypothesis is partially confirmed since the best predictive model for
310 Innovativeness comprises ten variables. Challenge, Self-efficacy, Pro-Activeness, Openness
311 to experience, Optimism, Curiosity-I, Functional Impulsivity, Extraversion, and Internal
312 Locus Control act in a positive way. This is in line with the findings of Suárez-Álvarez and
313 Pedrosa (2016). Control, on the other hand, acts in a negative way. These variables make the
314 person feel more able to carry out new things. Being curious, impulsive and open to
315 experience favors Innovation.

316 The third hypothesis is partially confirmed since the best predictive model for Risk
317 Taking includes six variables that act positively: Internal Locus Control, Curiosity-I, Pro-

318 Activeness, Extraversion, Optimism, and Pessimism. On the other hand, Agreeableness and
319 Openness to experience act in a negative way. These variables that refer to motivation and a
320 feeling of inner control favor the assumption of risk because the individual feels capable of not
321 making mistakes. Other authors also found that self-efficacy and control positively affect
322 entrepreneurial intention through risk propensity (Soria-Barreto et al., 2014). On the other
323 hand, the assumption of risk is reduced by variables such as a need to please and an openness
324 to experience, which could favor the performance of other less risky activities.

325 The fourth hypothesis is partially confirmed because the best predictive model for
326 Competitive Aggressiveness includes seven variables that act positively: Internal Locus
327 Control (ILC), Self-efficacy, Pro-Activeness, Optimism, Extraversion, Curiosity-I and
328 Openness to experience. On the other hand, Agreeableness acts negatively. The personality
329 variables that favor competitive aggressiveness are those that make one feel capable of
330 leading the company. Variables such as optimism, curiosity and openness to experience give
331 the person the drive needed to defend their ideas, while not pleasing others slows down this
332 variable. We have found no studies that relate this variable to personality traits.

333

334 **5. Conclusion**

335 The present study contributes to our knowledge of personality variables that predict
336 Entrepreneurial Orientation. Importantly, Openness to Experience, Proactivity, Curiosity I,
337 Optimism and Locus of Internal Control are the variables that explain greater variance when
338 predicting entrepreneurial behavior (Table 7). Similarly, Suárez-Álvarez and Pedrosa (2016)
339 found that the personality traits most related to entrepreneurial personality are: achievement
340 motivation, self-efficacy, risk-taking, innovation, autonomy, tolerance to stress, the locus of
341 internal control and optimism.

342 Our results provide important practical implications for identifying individuals who are
343 able to generate entrepreneurial behaviors and for empowering current employees with aspects
344 that favor entrepreneurial orientation.

345

346 *Limitations and suggestions for future research*

347 This research has some limitations, the first is the fact that its design is transversal,
348 which is why the results cannot be interpreted causally. On the other hand, the data obtained
349 comes from self-reports that the participants completed, so that part of the conclusions may
350 have been affected by the variation of the common method. In addition, research could be
351 improved by using a model of structural equations in data analysis. Since the multiple
352 regression analysis used to study the relationship between the predictor variables and the
353 criteria variables, it only allowed us to obtain conclusions about the direct and inverse
354 influence between the variables used.

355

356 *Practical implications*

357 The present research increases the literature on the concept of EO. Entrepreneurship
358 has an important social connotation, since it allows the creation of wealth and employment,
359 which benefits the entrepreneur and society. In addition, these findings present important
360 practical implications that companies should consider in the strategic management of human
361 resources to facilitate public and private companies the evaluation of candidates who wish to
362 start business projects. It is necessary to consider certain personality variables during the
363 selection so that a good choice can be made between the job position and the candidate.
364 Therefore, from educational entities it is important to promote the personality variables that
365 predict entrepreneurial behavior (Openness to Experience, Proactivity, Curiosity I, Optimism
366 and the Internal Locus of Control).

367 INSERT TABLE 7 HERE

368

369 **Conflict of Interests**

370 The authors declared no potential conflicts of interest with respect to the research,

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374

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Table 1*Descriptive statistics and reliability values with Cronbach's alpha coefficient.*

Variable	Minimum	Maximum	Mean	SD	α
EO.Auto	3.00	15.00	10.58	2.27	.71
EO.Inno	3.00	15.00	10.95	2.32	.70
EO.AsRi	3.00	15.00	8.72	2.74	.72
EO.ComAg	17.00	15.00	10.14	2.59	.70
OP. Ex	4.00	75.00	47.91	8.90	.86
OP. EE	4.00	76.00	44.69	13.04	.86
OP. CO	5.00	76.00	43.05	13.25	.77
OP. Ag	7.00	81.00	43.02	12.63	.71
OP. OE	7.00	71.00	44.09	11.67	.81
HS.Im	7.00	28.00	22.62	3.59	.80
HS.Ch	7.00	28.00	21.80	4.04	.86
HS.Con	10.00	28.00	21.58	3.54	.75
SES	10.00	50.00	29.01	5.19	.73
GSE	1.00	50.00	36.50	7.63	.92
DII.F	1.00	10.00	5.79	1.44	.78
DII.D	5.00	11.00	5.85	1.58	.77
PA	5.00	25.00	14.49	3.03	.83
Cu.I	5.00	20.00	15.61	3.13	.74
Cu.D	10.00	20.00	15.03	3.07	.72
ILC	3.00	50.00	33.10	5.26	.74
LOT.OP	3.00	15.00	11.42	2.31	.76
LOT.PE	3.00	15.00	7.94	2.46	.73

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538 **Table 2**539 *Correlations between the predictor variables and the criterion variables*

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PREDICTOR VARIABLES	CRITERION VARIABLES			
	EO.Auto	EO.Inno	EO.AsRi	EO.ComAg
OP. Ex	.18**	.26**	.14**	.24**
OP. EE	.21**	.23**	-.03	.11**
OP. CO	.11**	.12**	-.09**	-.03
OP. Ag	.06	.09**	-.17**	-.10**
OP. OE	.10**	.13**	-.16**	-.11**
HS.Im	.24**	.28**	.07*	.21**
HS.Ch	.44**	.44**	.19**	.30**
HS.Con	.27**	.22**	.16**	.26**
SES	.19**	.19**	.22**	.26**
GSE	.35**	.40**	.18**	.37**
DII.F	.16**	.17**	.05	.09**
DII.D	.02	.05	.08*	.09**
PA	.24**	.25**	.26**	.29**
Cu.I	.36**	.40**	.22**	.34**
Cu.D	.24**	.23**	.16**	.25**
ILC	.36**	.21**	.30**	.40**
LOT.OP	.33**	.34**	.20**	.37**
LOT.PE	.03	-.04	.17**	.05

541 ** $p < .01$; * $p < .05$

542 *Note:* Autonomy (EO-Auto), Innovativeness (EO-Inno), Risk Taking (EO-AsRi), Competitive Aggressiveness
543 (EO-ComAg), Extraversion (OP.Ex), Emotional Stability (OP.EE), Responsibility (OP.CO), Agreeableness
544 (OP.Ag), Openness to experience (OP.OE), Control (HS.Con), Commitment (HS.Im), Challenge (HS.Ch), Self-
545 esteem (SES), Self-efficacy (GSE), Functional Impulsivity (DII.F), Dysfunctional Impulsivity (DII.D), Pro-
546 Activeness (PA), Curiosity-I (Cu.I), Curiosity-D (Cu.D), Internal Locus Control (ILC), Optimism (LOT.OP)
547 and Pessimism (LOT.PE).

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553 **Table 3**
 554 *Summary of the models, variables and coefficients of regression analysis (stepwise method)*
 555 *for the Autonomy (EO-Auto)*

Models and Variables	Models							Coefficients				
	R	R ²	R ² Adjusted	SE	R Change	F Change	sig	B	SE	β	t	sig
Model-1	.44	.19	.19	2.03	.19	215.38	.000					
Model-2	.52	.27	.27	1.93	.07	94.26	.000					
Model-3	.54	.29	.29	1.91	.02	24.45	.000					
Model-4	.55	.30	.30	1.89	.01	13.26	.000					
Model-5	.56	.31	.30	1.88	.00	11.09	.001					
Model-6	.56	.32	.31	1.88	.00	8.71	.003					
Model-7	.57	.32	.32	1.87	.00	10.61	.001					
Model-8	.57	.33	.32	1.86	.00	10.01	.002					
Model-9	.58	.34	.33	1.85	.00	5.53	.019					
HS.Ch								.17	.02	.31	7.67	.000
ILC								.10	.01	.24	7.90	.000
GSE								.03	.01	.10	2.88	.004
PA								.06	.02	.08	2.65	.008
DII.F								.12	.04	.08	2.90	.004
LOT.Op								.10	.03	.10	3.32	.001
HS.Im								-.08	.02	-.13	-3.47	.001
Op.OE								.01	.00	.08	2.80	.005
Cu.I								.06	.02	.08	2.35	.019

Note: Excluded variables: Op.Ex, Op.EE, Op.CO, Op.Ag, HS.Con, SES, DII.D, Cu.D.

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558 **Table 4**

559 *Summary of the models, variables and coefficients of regression analysis (stepwise method) for*
 560 *Innovativeness (EO-Inno)*

Models and Variables	Models							Coefficients				
	R	R ²	R ² Adjusted	SE	R Change	F Change	sig	B	SE	β	t	sig
Model-1	.44	.19	.19	2.07	.19	218.02	.000					
Model-2	.49	.24	.24	2.01	.04	56.47	.000					
Model-3	.53	.28	.27	1.97	.03	42.42	.000					
Model-4	.54	.29	.28	1.95	.01	13.62	.000					
Model-5	.55	.30	.29	1.94	.01	12.76	.000					
Model-6	.55	.31	.30	1.93	.01	12.10	.001					
Model-7	.56	.31	.31	1.92	.00	8.54	.004					
Model-8	.56	.32	.31	1.91	.00	6.01	.014					
Model-9	.57	.32	.32	1.91	.00	5.18	.023					
Model-10	.57	.33	.32	1.90	.00	5.09	.024					
HS.Ch								.16	.02	.27	6.96	.000
GSE								.04	.01	.15	4.38	.000
PA								.11	.02	.14	4.90	.000
Op.OE								.01	.00	.07	2.71	.007
LOT.Op								.10	.03	.10	3.18	.001
HS.Con								-.07	.02	-.11	-3.24	.001
Cu.I								.07	.02	.10	2.88	.004
DII.F								.11	.04	.07	2.47	.013
Op.Ex								.01	.00	.07	2.33	.020
ILC								.03	.01	.07	2.25	.024

Note: Excluded variables: Op.EE, Op.CO, Op.Ag, HS.Im, SES, DII.D, Cu.D, LOT.Pe.

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567 **Table 5**

568 *Summary of the models, variables and coefficients of regression analysis (stepwise method)*
 569 *for Risk Taking (EO-AsRi).*

Models and Variables	Models							Coefficients				
	R	R ²	R ² Adjusted	SE	R Change	F Change	sig	B	SE	β	t	sig
Model-1	.30	.09	.09	2.61	.09	92.10	.000					
Model-2	.35	.12	.12	2.56	.03	30.35	.000					
Model-3	.39	.15	.15	2.52	.03	34.07	.000					
Model-4	.41	.17	.17	2.49	.01	19.62	.000					
Model-5	.43	.19	.18	2.47	.01	16.53	.000					
Model-6	.44	.20	.19	2.46	.00	10.11	.002					
Model-7	.45	.20	.19	2.45	.00	5.70	.017					
Model-8	.45	.21	.20	2.48	.00	5.18	.023					
ILC								.10	.01	.19	5.66	.000
Op.Ag								-.03	.00	-.15	-4.27	.000
Cu.I								.11	.02	.13	4.13	.000
Pa								.08	.03	.09	2.91	.004
Op.Ex								.04	.01	.13	4.07	.000
Op.OE								-.02	.00	-.09	-2.67	.008
LOT.Op								.11	.04	.09	2.88	.004
LOT.Pe								.08	.03	.079	2.27	.023

Note: Excluded variables: Op.EE, Op.CO, PR.Im, HS.Ch, HS.Con, SES, GSE, DII.F, Imp.D, Cu.D.

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571

572 **Table 6**

573 *Summary of the models, variables and coefficients of regression analysis (stepwise method)*
 574 *for Competitive Aggressiveness (EO-ComAg)*

575

Models and Variables	Models							Coefficients				
	R	R ²	R ² Adjusted	SE	R Change	F Change	sig	B	SE	β	t	sig
Model-1	.40	.16	.16	2.37	.16	176.7	.000					
Model-2	.51	.26	.26	2.23	.09	112.9 6	.000					
Model-3	.53	.28	.28	2.19	.02	31.86	.000					
Model-4	.53	.28	.28	2.19	.02	31.86	.000					
Model-5	.57	.32	.32	2.13	.02	26.50	.000					
Model-6	.58	.34	.34	2.10	.01	23.10	.000					
Model-7	.59	.35	.35	2.08	.01	17.31	.000					
Model-8	.60	.36	.35	2.08	.00	7.02	.008					
ILC								.13	.01	.27	9.14	.000
GSE								.05	.01	.14	4.30	.000
PA								.08	.02	.10	3.38	.001
LOT.Op								.17	.03	.15	5.01	.000
Op.Ag								-.02	.00	-.13	-4.20	.000
Op.Ex								.04	.00	.14	4.74	.000
Cu.I								.12	.02	.14	4.61	.000
Op.OE								-.01	.007	-.08	-2.65	.008

Note: Excluded variables: Op.EE, Op.CO, HS.Im, HS.Ch, HS.Con, SES, DII.F, DII.D, Cu.D, LOT.Pe.

576

577 **Table 7**
 578 *Summary of the predictive models on the four criterion variables of Entrepreneurial*
 579 *Orientation.*
 580

PREDICTIVE VARIABLES	CRITERION VARIABLES								
	EO.Auto		EO.Inno		EO.AsRi		EO.ComAg		Total Explained Variance (%)
	ΔR^2 Corrected	β	ΔR^2 Corrected	β	ΔR^2 Corrected	β	ΔR^2 Corrected	β	
OP. Ex	---	---	.004	.070	.015	.132	.017	.140	
OP. EE	---	---	---	---	---	---	---	---	---
OP. CO	---	---	---	---	---	---	---	---	---
OP. Ag	---	---	---	---	.030	-.150	.020	-.131	5.00
OP. OE	.008	.080	.011	.079	.009	-.095	.005	-.084	3.3
HS.Im	.008	-.131	---	---	---	---	---	---	.8
HS.Ch	.196	.319	.198	.279	---	---	---	---	39.4
HS.Con	---	---	.010	-.118	---	---	---	---	1.00
SES	---	---	---	---	---	---	---	---	---
GSE	.020	.101	.048	.159	---	---	.095	.147	16.3
DII.F	.009	.081	.005	.070	---	---	---	---	1.4
DII.D	---	---	---	---	---	---	---	---	---
PA	.011	.080	.035	.149	.018	.099	.026	.100	9.0
Cu.I	.004	.082	.007	.102	.033	.136	.013	.148	5.7
Cu.D	---	---	---	---	---	---	---	---	---
ILC	.078	.240	.004	.071	.095	.192	.167	.270	34.4
LOT.OP	.007	.108	.010	.104	.005	.099	.020	.159	4.2
LOT.PE	---	---	---	---	.005	.079	---	---	.5
Total variance explained (%)	34.10	---	33.10	---	21.00	---	36.30	---	---

581 *Variables:* Autonomy (EO-Auto), Innovativeness (EO-Inno), Risk Taking (EO-AsRi), Competitive
 582 *Aggressiveness (EO-ComAg), Extraversion (OP.Ex), Emotional Stability (OP.EE), Responsibility (OP.CO),*
 583 *Agreeableness (OP.Ag), Openness to experience (OP.OE), Control (HS.Con), Commitment (HS.Im), Challenge*
 584 *(HS.Ch), Self-esteem (SES), Self-efficacy (GSE), Functional Impulsivity (DII.F), Dysfunctional Impulsivity*
 585 *(DII.D), Pro-Activeness (PA), Curiosity-I (Cu.I), Curiosity-D (Cu.D), Internal Locus Control (ILC), Optimism*
 586 *(LOT.OP) and Pessimism (LOT.PE).*

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588 **Figure 1**589 *Model followed in this study*

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