

University students profile, entrepreneurship education, and entrepreneurial intentions.

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ABSTRACT

The present study aims to enlarge entrepreneurial intentions knowledge. Based on ascribed characteristics, level of education, entrepreneurial education and working experience, we want to explain how entrepreneurial intentions differ amongst students of three fields of study: health, Business and Engineering. We also want to analyze the effect of entrepreneurial education comparing entrepreneurial intentions of first year students and last year ones.

KEY WORDS: Entrepreneurial intentions, Profile, Survey, University students

RESUMEN

El presente estudio pretende profundizar en el conocimiento relacionado con las intenciones emprendedoras. Basándonos en las características predeterminadas, el nivel de formación, la educación emprendedora y la experiencia laboral, queremos explicar como las intenciones emprendedoras difieren entre los estudiantes de tres ramas de estudio: salud, negocios e ingeniería. También queremos ver el efecto de la educación emprendedora comparando las intenciones de ser emprendedor de los alumnos de primer año y los alumnos de último curso.

PALABRAS CLAVE: Intenciones emprendedoras, Perfil, Encuesta, Estudiantes universitarios

RESUM

El present estudi pretén profunditzar en el coneixement relacionat amb les intencions de esdevenir emprenedor. Basant-nos en les característiques predeterminades, el nivell de formació, l'educació emprenedora i l'experiència laboral, volem explicar com les intencions emprenedores difereixen entre els estudiants de tres branques d'estudi: salut, negoci i enginyeria. També volem veure quin és l'efecte de l'educació emprenedora comparant les intencions de ser emprenedors dels alumnes de primer any i dels d'últim curs.

PARAULES CLAU: Intencions emprenedores, Perfil, Enquesta, Estudiants universitaris

1. DESCRIPTION AND CONTEXTUALIZATION OF THE SUBJECT CHOSEN

The reason why I have chosen this topic for the research is at first, my personal interest on the profile of people. I like to see how they act and understand why they do it in a determined way.

Secondly, and related with the first reason, I have thought that analyzing the profiles of people in a university, could teach me interesting features of human nature related to entrepreneurship. Then, I have started looking for literature on university student profile and I have found a lot of studies related with entrepreneurship (Simoes et al., 2015). In addition, Tecnocampus is a considered an entrepreneurial university with special focus on innovation (Plewa et al., 2015). This constitutes a perfect scenario to carry out the study on people's attitudes and their entrepreneurial intentions.

I can associate the subject chosen for the study with many of the subjects in the curricula of Business Administration and Innovation Management degree, as we can expect by its title.

The main one would be "Creation of innovative and technology-based start-ups" where we learnt how to do an entire business plan and relate it with innovative solutions. Other subjects as "Strategic Innovation", "New trends on business administration" and "Innovation design and Management", acquainted me with plenty of cases where innovation and entrepreneurship come hand in hand.

Furthermore, we observe a growing number of the self-employed workers in the Spanish economy, which additionally drew my attention to the topic. During the past decades, entrepreneurial intentions and attitudes have been studied in order to determine, what variables determine entrepreneurial behavior (Bae et al., 2014).

By now, it is known that some variables have a positive impact on entrepreneurial intentions, although, the explanations on how precisely those variables affect entrepreneurship is not yet determined (Bae et al., 2014, Simoes et al., 2015, van Der Sluis et al., 2008).

This study aims at extending the knowledge on how personal characteristics along with the habits affect the entrepreneurial intentions. We do not study the entrepreneurial action as such because it is impossible to observe that among the students of Tecnocampus as of now due to the lack of reliable data.

2. INTRODUCTION - BACKGROUND

This research aims to fill the gap in the literature on entrepreneurial intentions¹ by analyzing the relation between different profiles of university students and the intentions to become an entrepreneur (Bae et al., 2014, Bosma et al., 2012, Oosterbeek et al., 2010).

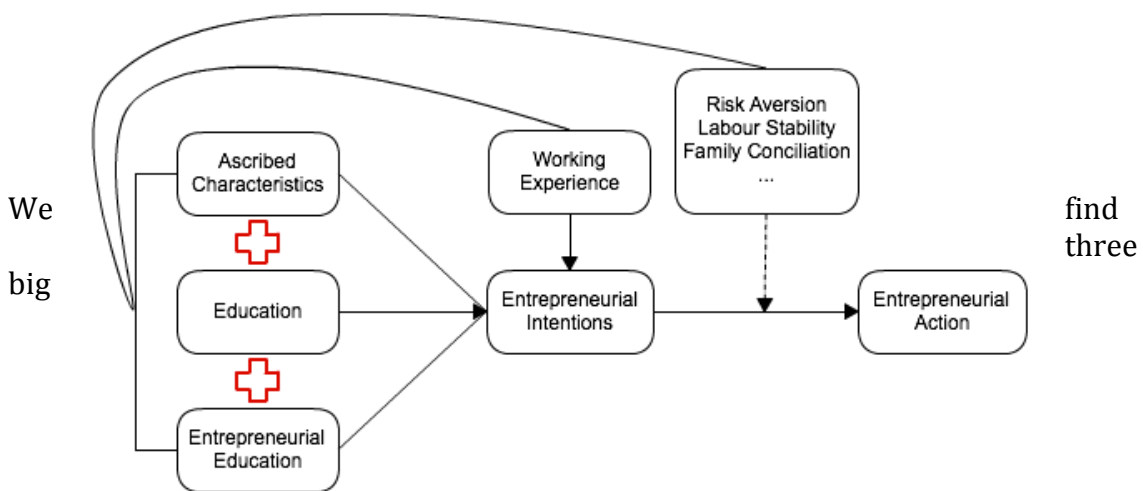
Our focus is on the entrepreneurial intentions of students of Tecnocampus. We want to compare their intentions at the beginning and towards the end of their studies. Using survey methodology, we are able to observe the key characteristics used in the literature on the entrepreneurial intentions (Simoes et al., 2015).

¹ Entrepreneurial intentions are usually defined as one's desire to own one's own business (Crant, 1996) or to start a business (Krueger, Reilly and Carsrud, 2000).

However, we go a step further and apart from the typical ascribed characteristics such as gender, age, and family background, we are also going to measure their interests, ways of spending their free time. Most importantly, we are going to intend to observe the five big personality traits of our students' sample (Costa and MacCrae, 1992, Gosling et al., 2003). Conducting our survey in an environment like Tecnocampus, permits us to observe students from three different fields of study: business, health (nursing) and engineering.

Based on previous literature, we can define entrepreneurial intentions as follows (Bae et al., 2014, Simoes et al., 2015, von Graevenitz et al., 2010, von Graevenitz and Weber, 2011):

Table 1 Groups of variables related with entrepreneurship



blocks, which combined, drive to entrepreneurial intentions. The first one, ascribed characteristics are those characteristics that we don't choose, they are given. We can consider as ascribed characteristics variables such as: age, gender, and family background.

The second one, education, refers to the level of education received, the study field, as well as the grade point average (GPA).

The effect of each of the abovementioned ascribed characteristics has been well described in the literature. Nevertheless, those characteristics are not the only ones influencing entrepreneurial behavior. It has been proven that receiving an entrepreneurial education² have a positive relation with entrepreneurial intentions (Dickson et al., 2008, Matlay, 2008).

Previous studies related with entrepreneurial intentions and attitudes have shown the relation those characteristics have, independently, with entrepreneurial intentions. Though, there is not a consensus on what exactly influences

² Entrepreneurship education consists of “any pedagogical program or process of education for entrepreneurial attitudes and skills” (Fayolle, Gailly, and LAssas-Clerc, 2006).

entrepreneurial intentions. For example, it is not proved if entrepreneurial education affects the same way everyone, whatever their field of study (Bae et al., 2014, von Graevenitz et al., 2010).

The aim of this study is to unify all the different characteristics that have been related with entrepreneurial intentions, in one model, in order to advance the knowledge in this particular field of entrepreneurial education. The context of the study, gives us the opportunity to compare the obtained results by educational fields (Health, Business and Engineering) and better understand and define entrepreneurial intentions.

Tecnocampus is a study center that empowers entrepreneurial education and entrepreneurial intentions. The degrees offered are from different branches of knowledge. That brings the opportunity to compare how entrepreneurial education affects depending on the field of study.

Tecnocampus is an interesting case for study of entrepreneurial intentions due to its strong entrepreneurial and innovation orientation. On the one hand it enables us to compare results between different degrees, and in the other hand we can compare entrepreneurial intentions with and without entrepreneurial education. There are no studies to date, which would openly address hypotheses on the entrepreneurial education while controlling for the personality traits. We aim at filling this gap in the literature.

3. OBJECTIVES AND KEY QUESTIONS

The first general objective is to study the effects of entrepreneurial education on students from 3 different fields of study: Engineering, Health and Business; while controlling for their ascribed characteristics, education results and orientations. While we do not explicitly control for participation in the entrepreneurial studies we seek to address the prevailing behavioral and attitudinal patterns that make students more prone to be willing to start their own company. Our sample of students at Tecnocampus are all exposed to entrepreneurial education and thus we lack a proper “placebo” group in this study. It is clearly a limitation to our approach here.

Given the major objective stated above, the following five questions drive this research:

- Q1.** Are there any differences between fields of study when it comes to the entrepreneurial intentions?
- Q2.** Are there any attitudinal traits described by Gosling et al. (2003) related with being more likely to start a company?
- Q3.** Are there any labor market aspects positively related with entrepreneurial intentions?
- Q4.** Are there any competences making students became more versatile and thus, possibly, more successful in their own start-ups?
- Q5.** Are there any certain personality traits that are more “typical” for student’s entrepreneurial intentions?

4. HYPOTHESES

Based on the above questions we were able to form the following five working hypotheses.

H1. There are differences between fields of study when comparing entrepreneurial intentions.

The study by Bae et al. (2014) suggests that not only the level but also the types of human capital associated with different fields of study might be determinant to the willingness to start a company within the entrepreneurial education.

H2. More alert, creative and self-conscious students are more likely to start a new company.

There is an extensive literature started by Kirzner (1973) and further developed by Kirzner (1999) which puts alertness to new opportunities as the key skill necessary in order to be considered an entrepreneur. This made us include a whole battery of attitudinal questions and skills question in our survey in order to capture (although imperfectly due to subjectivity of the answers) whether students at Tecnocampus consider themselves alert. The initial research was further extended by Tang et al. (2012) with the creativity trait and by Gaglio (2004) with self-consciousness as the three major traits necessary in order to enterprise,

H3. Students who desire more job autonomy and high salaries are more likely to become entrepreneurs.

As observed by Hamilton (2000) starting up an own company involves not only an expectation of earning high income (for profit entrepreneurship) but it also, and perhaps more importantly, it involves a desire to be one's own boss. We test these claims in the hypothesis H3.

H4. Students who have knowledge of their fields are more likely to be willing to start their own companies.

Lazear (2004) proposed a competing theory whereby to become a successful entrepreneur one needs a balanced knowledge of many disciplines. We test this issue by asking our respondents about their knowledge of other fields and about how proficient they feel in their own discipline of studies.

H5. There are certain personality traits that are more "typical" for students who want to start their company.

Finally, we also test for the personality traits associated with the desire to start a company (Caliendo et al., 2014).

5. METHODOLOGY

On the first part of the project, the methodology we are going to use to analyze the objectives described above is a survey, taking place in Tecnocampus. We are going to survey students among the degrees offered by the center, differentiating between field of study (Health, Business and Engineering).

The survey is structured in different blocks, each one related with the different components of entrepreneurial intentions.

The first block of questions (A, B, C, D, and E) makes reference to ascribed characteristics.

After that we continue with questions related with the education received: previous studies, studying habits, medium mark obtained during the degree and abroad experiences (1, 2, 3, 4, 5, 6 and 7).

Questions 8 and 19 refers to the willingness of continue studying or enter the labor market, and the willingness of becoming entrepreneur respectively.

We continue the survey asking questions related to family background and household income (9, 10, 11, 12 and 13): the job position of the parents, their level of studies, who pays the studies and through what payment modality.

The next block aims to learn about the working experience of the students, both before and during their studies (14, 15, 16, 17 and 18).

The purpose of questions 20 and 21 is to know the interests and habits of the students, which has not been addressed in the literature thus far.

Question 22 makes reference to the job market orientations.

Question 23 refers to the skills of students. Students evaluate their own skills in a subjective manner in this question.

Question 24 is based on the Ten-Item Personality Inventory, TIPI, described by Gosling et al. (2003) on which 10 items are valued from 1 to 7, being 1 strongly disagreement and 7 strongly agreement. Those 10 items are divided by pairs and grouped into 5 personality traits. The sum of the scores of every pair is going to determine the personality of each student.

The 5 personality traits are:

- Extraversion: the score on extraversion is made based on the score of questions 23.A + 23.B reversed.
- Agreeableness: score of questions 23.C + 23.D reversed.
- Conscientiousness: score of questions 23.E + 23.F reversed.
- Emotional stability: score of questions 23.G + 23.H reversed.
- Openness to Experiences: score of questions 23.I + 23.J reversed.

Reverse is when we consider the value of the question with the opposite value, if the student writes a 1, we consider a 7, if he writes a 2, we consider a 6, and so on. Finally, and to verify if participants are lying or telling us the truth we have related some questions that need to be consistent between them. If the answer in question 2 is "because of its entrepreneurial and innovative spirit", we expect to get a "yes" on question 18.

In questions 9, 12 and 16, we expect that if the student pays its own studies, he will be working right now. The combination of variables of these three questions is going to give us a vision on what is the proactivity of the student and the economic support that they receive to pay the studies.

Questions 18 and 22 pretend to determine if it is consistent the willingness of becoming entrepreneur and level of skills related with entrepreneurial intentions. You will find the entire survey on the annexes of this paper.

Once completed the survey we will start the second part of the project. We will start codifying the data, introducing it to a database and cleaning it from incorrect and incoherent answers. After that we are going to study the mean of all the variables and compare it through a mean comparison test. Finally, in order to prove the veracity of our hypotheses, we are going to do various regression models using the variables resulting positive related with entrepreneurial intentions on the previous tests. The purpose of doing various regression models is to distinguish the different blocks of questions of the survey.

6. THEORETICAL FRAMEWORK

In recent decades, self-employment has been considered as a central issue concerning labor market (Simoes 2015). Entrepreneurship and self-employment contributes to income, Jobs, R&D and innovations, generating economic benefits reaped by the entrepreneurs themselves (Van Praag and Versloot, 2007). Many factors influence entrepreneurial intentions and success. From previous literature we know that three main blocks are the ones explaining the relation between different profiles of people and its entrepreneurial behavior.

6.1. ASCRIBED CHARACTERISTICS

6.1.1. Gender

Regarding self-employment, women are less likely to start own businesses than men (Blanchflower 200; Leoni and Falk, 2010; Stefanovic and Stosi, 2012; Verheul et al., 2012; Koellinger et al., 2013).

Various reasons that could explain the numbers are: risk aversion, job satisfaction, job expectations and external financial predisposition. Women are less risky than men (Dohmen et al. 2011). Men are less satisfied with their job (Budig 2006) because their expectations are higher than women (Clark, 2007). Finally, Women prefer avoiding external financing (Carter and Show, 2006) needed to start a business.

Despite the above statistics, women self-employment over the time has been increasing (Devine, 1994; Caputo and Dolinsky, 1998; Koellinger et al., 2015). The motivation for becoming an entrepreneur differs also depending on the gender, men look for higher returns and women look for more flexibility (Wellington, 2006; Gurley-Calvez et al., 2009).

6.1.2. Age

The age-entrepreneurial intention relationship is defined by a U-shape (Lévesque and Minniti, 2006). Being the gap between 25 and 45 the less likely to become entrepreneurs. People being less than 25 become entrepreneurs by need, instead, people older than 45 years of age do it because they have more resources, whether they are human or economic, and they look for work and leisure conciliation.

6.1.3. Family Background

Surrounding oneself with entrepreneurs and self-employed people affects entrepreneurial intentions and actions positively. Most studies suggest self-employed parents are an example of that (Hundley, 2006; Banir and McLaughlin, 2011). In the event that one parent is self-employed, this would result in an increase in the likelihood of his offspring to be self-employed as well. (Taylor, 2001) and if two parents were self-employed, the impact would be significantly bigger (Dumm and Holtz-Eakin, 2000).

The research on the matter found various reasons to explain the positive relation caused by self-employment proximity: transference of human capital (Hundley, 2006; Barnir and McLaughlin, 2011; Kim et al., 2006; White et al., 2007); Favorable financial conditions (Sanders and Nee, 1996; Hundley, 2006); Inheritance of the parents' business and Exposure to parental role models (Bandura, 1986)

6.1.4. Household income

Regarding household income, Evans and Jovanovic (1989) confirmed the positive relation with entrepreneurial intentions. It is known that starting a business has a high initial investment and a wealthy household could imply using own capital and investment and networking advantages for getting external finance, Simoes (2015).

Aside from the above stated, there are also people with no household wealth that still become entrepreneurs. Fairlie and Krashinsky, (2012) differentiated them between self-employment by opportunity and by necessity.

6.1.5. Personality traits

During the past decades, many personality traits have been analyzed in order to know its relation with entrepreneurial intentions. The following are the most studied ones

- Overconfidence (Camerer and Lovallo, 1999; Koellinger et al., 2007, 2013)
- Over optimism (Macko and Tyszka, 2009)
- Need for achievement (McClelland, 1961; Rauch and Frese, 2007)
- Need for autonomy (Brandstalter, 1997; Croson and Minniti, 2012)
- Self-efficiency (Chen et al., 1998; Rauch and Frese, 2007; Van Solinge, 2014)
- Internal locus of control (Rotter, 1966; Eren and Sula, 2012)
- Assertiveness (Brandstatter, 1997; Caliendo and Kritikos, 2008)
- Narcissism (Mathieu and St-Jean, 2013)
- Taste for variety (Astebro and Thoompson, 2011)

All those traits can be considered separately by the Five-Factor Model developed by Costa and McCrae, 1992, which determines the following dimensions: extraversion, openness to experience, agreeableness, conscientiousness and emotional stability.

A recent study (Schmitt-Rodermund, 2014) adds to the matter knowledge that extraversion, openness to experience and conscientiousness have a stronger influence on entrepreneurial intentions than agreeableness and emotional stability.

6.1.6. Perceptual

The perceptions that we have, have an impact on entrepreneurial intentions.

Literature suggests four main perceptual traits (Arenius, 2005).

- Knowing other entrepreneurs: As we have seen when talking about the influence of having self-employed parents on entrepreneurial intentions, we can state that being surrounded by entrepreneurs is going to increase entrepreneurial intentions. We can find an explanation to that due to the increase on confidence as well as receiving more advice and support (Baron, 2000; Begley and Boyd, 1987).
- Fear of failure: Fear of failure is a component of risk aversion, which has influence in entrepreneur intentions. Having a low perception of fear to failure means higher possibilities to become entrepreneur (Weber and Milliman, 1997).
- Confidence in one's skills and ability and internal locus of control: Literature has confirmed the positive relation of confidence on own skills

and abilities to entrepreneurial intentions. Those intentions are also influenced by the internal locus of control (Baron, 2000). Harper (1998) argues that internal locus of control increases the improvement on entrepreneurial alertness and self-efficacy.

- Alertness to new opportunities: Opportunity perception is the most relevant perceptual characteristic of entrepreneurial intentions (Kizner, 1973, 1979).

6.2. EDUCATION

6.2.1. Level

The influence of education on self-employment caused opposing arguments amongst the theoretical sphere. What it is sure is that higher education contributes to: (1) better job opportunities in the wage sector (Van der Sluis et al., 2008); (2) Ability to identify self-employment opportunities; (3) and succeed in self-employment occupations (Lucas, 1978).

On the one hand, Zissimopoulos et al. (2009) conclude that having a higher education has a significant influence on entrepreneurship. On the other hand, there are other studies confirming the opposite (Kidd, 1993; Bruce, 1999; Clark and Drinkwater, 2000).

Other studies (Blanchflower, 2004) indicate that education has a positive impact in the USA but not in the EU.

Some recent empirical research attributes a U-Shape to the relation between education and self-employment (Blanchflower, 2000; Astebro et al., 2011).

6.2.2. Field

Entrepreneur women and men work in different sectors (Georgellis and Wall, 2005), while there are more self-employed men in technical sectors, self-employed women predominate on the service sector (Bates, 1995; Vejsiu, 2011). This might be because men and women have different preferences when choosing the field of study.

6.2.3. Grade Point Average (GPA)

High grade point averages are related with higher levels of entrepreneurship. Higher grade point is associated with higher level on entrepreneurial skills and attitudes, as well as a higher level of education, and more opportunities for working.

6.3. ENTREPRENEURIAL EDUCATION

As many topics, entrepreneurial education has controversy in its relation to entrepreneurial intentions. (Oosterbeek et al., 2010; von Graevenitz et al. 2010) found entrepreneurial education reduced entrepreneurial intentions. However, the same study (Graevenitz et al., 2010) demonstrated that entrepreneurial education provides students with entrepreneurial abilities. We could also say that entrepreneurial education is kind of a filter, either for increasing entrepreneurial intentions or for decreasing it.

(Fishbein and Ajzen, 2010) Identifies three attitudinal factors affecting personal intentions to become an entrepreneur: perception of the desirability of an action for that person, the social norms regarding that action, and the degree of behavioral control the person has in undertaking the action.

6.4. WORKING EXPERIENCE

Research is consensual on the positive impact the working experience has on entrepreneurial intentions (Taylor, 2001; Poschke, 2013). Deepening in the field, various authors shape that concept and add that full-time working experience also has a positive relation (Eliasson and Westlund, 2013), as well as diversified experience (Lazera, 2005), and previous self-employment experiences (Shane, 2003).

Working experience drives to managerial skills improvement (Shane, 2003) and industry-specific experience (Kim et al. 2006).

7. RESULTS

To show the results obtained we are going to start from the general results to finally explain specifically by fields of study.

At first, we have compared entrepreneurship amongst the different fields of study using two mean comparison test. **Table 3** shows that Business students ($T > t = 0,0001$) are significantly more willing to start their own company than Engineering or Health students.

Table 2 Two mean comparison test: entrepreneurship by fields of study

ENTREPRENEUR		
Business > Health 0,0001	Engineering > Health 0,0092	Business no ≠ Engineering

Secondly, we have studied all the variables from the survey divided by blocks. This way we analyzed how those variables affect to entrepreneurship using mean comparisons with the t-tests. We have done that for all Tecnocampus students surveyed and also by fields of study (APENDIX 2) When we look at all the students of Tecnocampus, we find out that being a male is strongly related with entrepreneurial intentions ($T > t = 0,0017$). We get the same results when we study Engineering ($T > t = 0,0146$) and Health (0,0149) separately. We do not find significant differences for the Business students when it comes to gender.

As it comes to individual attributes, we observe that being self-conscious is positively associated with entrepreneurial intentions for the Business students ($T > t = 0,0057$). Engineering students, on the other hand, are more likely to be enterprising for its job autonomy ($T > t = 0,0267$) and possibility for creative actions. Working under pressure is a good predictor of entrepreneurial intentions for the Engineering students as well ($T > t = 0,0249$)

Model 1 Includes only the more relevant variables defined by previous literature and two of three fields of study (the reference field of study is Business). Our results show that variables such as gender ($p < 0,01$) or field of study; engineering ($p < 0,05$) and Health ($p < 0,01$), are influencing entrepreneurial intentions.

In the next steps we add gradually other significant variables in a model building strategy. This way we see which variables contribute and which do not to explanation of the entrepreneurial intentions of students in Tecnocampus.

Model 2 Makes reference to individual attributes that had shown a positive influence to entrepreneurial intentions on the t-test analysis. In this case, we observe that students being more creative and coming up with new ideas are more likely to want to strat a company ($p < 0,05$).

Model 3 is looking for entrepreneurial intentions depending on various job conditions. We observe that job autonomy and high salary expectations are not job conditions influencing positively to the intentions of starting a new company.

Model 4 Aims to verify if there are competences affecting entrepreneurial intentions. Results show that being polyvalent is not a variable influencing entrepreneurial intention.

Model 5 Results on model 5 include variables from the 5 item inventory (Goslig et al., 2003). We observe that having an open personality is a good predictor of entrepreneurial intentions.

Model 6 shows that when putting all the variables above mentioned, none of them are significant, except the ones from Model 1.

8. CONCLUSION

8.1 HYPOTHESES VERIFICATION

H1. We confirm that there are significant differences between entrepreneurial intentions amongst the different fields of study.

H2. The hypothesis is not confirmed. There is an exception for the creative students from engineering.

H3. Labor market aspects are not related with entrepreneurial intentions except for engineering students desiring job autonomy.

H4. We deny the hypotheses because there are no personal competences influencing positively the intentions of starting a business.

H5. It exists a few personality traits seeming to be related to entrepreneurial intentions when doing two mean comparison test but the opposite occurs when doing regressions.

8.2 RESULTS CONCLUSION

Following the same structure as in the results, we observe that Business students are more likely to become entrepreneurs, as in the literature previously presented. We still can not explain if it is studying business what makes it or if it is certain type of people that chooses business fields.

As it comes to the individual variables, the results obtained were as expected when talking about gender for Tecnocampus students. Having the capacity of working under pressure is a trait of entrepreneur people and so it is proved by Tecnocampus students.

By fields of study we found out that male studying engineering are also more likely to start a company. In Health fields men are more likely to become entrepreneur than women, while previous studies say the opposite. Gender and open personality are not relevant in business fields. We could explain this due to the fact that being a business student gives you other knowledge and tools to become entrepreneur.

Regarding engineering fields, the results show that autonomy when working and new ideas are positively related to entrepreneurial intentions. We could explain this by the fact that being autonomous and creative is the day to day of this kind of fields, that means, as good as you are at it, as chances you have to start your own company.

To finish, and making reference to the regressions models, we observe and confirm again, that gender and field of study are significantly related with entrepreneurial intentions. We observe two traits being also related with entrepreneurial intentions, being creative and having an open personality. We observe, that those variables are only relevant when analysed in separate regressions, but when analysed in a single one, they stop being relevant. We can explain this because those variables, are influenced one by the other.

9. APPENDIXES

9.1 APPENDIX 1: Survey tooked to the students

A. Field of study: _____

B. Higher course signed up for: _____

C. Age: _____

D. Sex: Male / Female

E. City where you live: _____

1. What are your previous studies?

- A. High School
- B. Tertiary studies
- C. Other degree, which one? _____

2. Why did you choose Tecnocampus?

A. By its entrepreneurial and innovative spirit

D. By its reputation

E. Other, which one? _____

B. By proximity

C. By minimum GPA

3. When do you use to study during the day?

A. Mornings

B. Afternoons

C. Nights

4. How far in advance do you use to do your homework? (1 few, 7 a lot)

1	2	3	4	5	6	7
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5. How do you agree with the following sentence: I like to give all my efforts in terms of studies. (1 strongly disagree, 7 strongly agree)

1	2	3	4	5	6	7
---	---	---	---	---	---	---

6. What is your GPA?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

7. Have you done an Erasmus program? Yes / No

8. What would you like to do when you finish your degree? Work / Keep studying

9. Who pays your studies?

A. Mother

D. You

B. Father

E. Others, who?

C. Both

10. What payment modality do you choose?

A. One only payment

C. Payment in 10 months

B. Payment in 3 months

D. Others, what? _____

11. What is the job of your parents?

Father _____ Mother _____

12. What is the level of studies of your parents?

	Father	Mother
Secondary school		
High school		
University		
Mastery		
Phd		

13. Who are you living with?

- A. Alone
 B. With parents
 C. With friends
 D. With your couple

14. Before starting your degree, did you had working experience? (If no, continue in question 16) Yes / No

15. What?

Job nº1					
How long have you been there (months)?					
Full-time or Part-time?	Part			Full	
How big was the company?	1 to 9 workers	10 to 49 workers	50 to 249 workers	250 to 499 workers	+ than 499 workers

16. Have ou got working experience during your degree?

Job nº1					
How long have you been there (months)?					
Full-time or Part-time?	Part			Full	
How big was the company?	1 to 9 workers	10 to 49 workers	50 to 249 workers	250 to 499 workers	+ than 499 workers

17. Are you working right now? Yes / No

18. Com d'acord estàs amb la següent expressió: M'agrada donar-ho tot de mi en la feina. (1 gens d'acord, 7 molt d'acord)

1	2	3	4	5	6	7
---	---	---	---	---	---	---

19. Would you like to create your own business? Yes / No

20. Value the following interests (1 I'm not interested, 7 I'm very interested)

A. Lecture	1	2	3	4	5	6	7
B. Sports	1	2	3	4	5	6	7
C. Fashion	1	2	3	4	5	6	7
D. Food / Restaurants	1	2	3	4	5	6	7
E. Cinema	1	2	3	4	5	6	7
F. Cars	1	2	3	4	5	6	7
G. Videogames	1	2	3	4	5	6	7
H. Economy	1	2	3	4	5	6	7
I. Technology	1	2	3	4	5	6	7
J. Science	1	2	3	4	5	6	7
K. Tourism	1	2	3	4	5	6	7
L. Nature	1	2	3	4	5	6	7
M. Nutrition	1	2	3	4	5	6	7
N. Culture	1	2	3	4	5	6	7
O. Religion	1	2	3	4	5	6	7
P. Family	1	2	3	4	5	6	7
Q. Friends	1	2	3	4	5	6	7
R. Society	1	2	3	4	5	6	7
S. Animals	1	2	3	4	5	6	7
T. Art	1	2	3	4	5	6	7

21. How frequently do you go to the following places? (1 never, 7 very often)

A. Bars	1	2	3	4	5	6	7
B. Restaurants	1	2	3	4	5	6	7
C. Discos	1	2	3	4	5	6	7
D. Gym	1	2	3	4	5	6	7
E. Museums	1	2	3	4	5	6	7
F. Library	1	2	3	4	5	6	7
G. Parks / Green spaces	1	2	3	4	5	6	7
H. Festivals / Concerts	1	2	3	4	5	6	7
I. Markets	1	2	3	4	5	6	7

22. Point out how important are for you the following labor market aspects. (1 not important, 7 very important).

A. Work autonomy	1	2	3	4	5	6	7
B. Labor stability	1	2	3	4	5	6	7
C. Opportunity to learn new things	1	2	3	4	5	6	7
D. High wage	1	2	3	4	5	6	7
E. Nous reptes	1	2	3	4	5	6	7
F. Employment projection	1	2	3	4	5	6	7
G. Leisure time	1	2	3	4	5	6	7
H. Social prestige associated with working	1	2	3	4	5	6	7
I. Chance to do something useful for society	1	2	3	4	5	6	7
J. Family conciliation	1	2	3	4	5	6	7

23. How do you rate your own level of competence? (1 very low, 7 very high)

A. Knowledge of your own field of study	1	2	3	4	5	6	7
B. Knowledge of other fields or disciplines	1	2	3	4	5	6	7
C. Analytical thinking	1	2	3	4	5	6	7
D. Ability to rapidly acquire new knowledge	1	2	3	4	5	6	7
E. Ability to negotiate effectively	1	2	3	4	5	6	7
F. Ability to perform well under pressure	1	2	3	4	5	6	7
G. Alertness to new opportunities	1	2	3	4	5	6	7
H. Ability to coordinate activities	1	2	3	4	5	6	7
I. Ability to use time efficiently	1	2	3	4	5	6	7
J. Ability to work productively with others	1	2	3	4	5	6	7

K. Ability to mobilize the capacities of others	1	2	3	4	5	6	7
L. Ability to make your meaning clear to others	1	2	3	4	5	6	7
M. Ability to assert your authority	1	2	3	4	5	6	7
N. Ability to use computers and the internet	1	2	3	4	5	6	7
O. Ability to come up with new ideas and solutions	1	2	3	4	5	6	7
P. Willingness to question your own and others' ideas	1	2	3	4	5	6	7
Q. Ability to present products, ideas or reports to an audience	1	2	3	4	5	6	7
R. Ability to write reports, memos or documents	1	2	3	4	5	6	7
S. Ability to write and speak in a foreign language	1	2	3	4	5	6	7

24. Score form 1 to 7 (1 strongly disagree, 7 strongly agree) the following personal attributes

A. Extraverted, enthusiastic	1	2	3	4	5	6	7
B. Reserved, quiet	1	2	3	4	5	6	7
C. Sympathetic, warm	1	2	3	4	5	6	7
D. Critical, quarrelsome	1	2	3	4	5	6	7
E. Dependable, self-disciplined	1	2	3	4	5	6	7
F. Disorganized, careless	1	2	3	4	5	6	7
G. Calm, emotionally stable	1	2	3	4	5	6	7
H. Anxious, easily upset	1	2	3	4	5	6	7
I. Open to new experiences, complex	1	2	3	4	5	6	7
J. Conventional, uncreative	1	2	3	4	5	6	7

9.2 APPENDIX 2: Two mean comparison test by fields of study

	ENTREPRENEUR			
	BUSINESS	ENGINEERING	HEALTH	ALL
Sex	No relevant	Male 0,0146	Male 0,0149	Male 0,0017
Gpa	No relevant	No relevant	No relevant	No relevant
Workknow	No relevant	NO 0,0755	No relevant	No relevant
Iwautonomy	No relevant	0,0267	No relevant	No relevant
Iwsalary	No relevant	No relevant	No relevant	No relevant
Iwchallenge	No relevant	No relevant	No relevant	No relevant
Iwcareer	No relevant	No relevant	No relevant	No relevant
Fieldknowledge	No relevant	No relevant	No relevant	No relevant
Otherknowledge	No relevant	No relevant	No relevant	No relevant
Pressure	No relevant	0,0941	No relevant	0,0354
Alertness	No relevant	No relevant	No relevant	No relevant
Newideas	No relevant	0,0249	No relevant	No relevant
Autocritic	0,0057	No relevant	No relevant	No relevant
pvextraversion	No relevant	No relevant	No relevant	0,0797
Pvagreable	No relevant	No relevant	No relevant	No relevant
Pvconscious	No relevant	No relevant	No relevant	No relevant
Pvstable	No relevant	No relevant	No relevant	No relevant
pvopen	0,0982	0,092	No relevant	No relevant

* -Extensive results available upon request

9.3 APPENDIX 3: Business regression models

	Model1	Model2	Model3	Model4	Model5	Model6
Wants to start company						
Female	-0.236 (0.206)	-0.255 (0.209)	-0.239 (0.207)	-0.228 (0.208)	-0.256 (0.207)	-0.255 (0.216)
Age	-0.053 (0.043)	-0.059 (0.043)	-0.054 (0.043)	-0.055 (0.043)	-0.057 (0.043)	-0.061 (0.044)
Average grade	-0.065 (0.118)	-0.080 (0.120)	-0.091 (0.120)	-0.083 (0.119)	-0.073 (0.118)	-0.123 (0.123)
Alert to new ideas		-0.036 (0.096)				-0.030 (0.103)
Creative		0.116 (0.099)				0.109 (0.114)
Self-conscious		0.034 (0.079)				0.041 (0.081)
Wants autonomy in job			-0.042 (0.093)			-0.097 (0.104)
Wants high salary in job			-0.120			-0.097

			(0.107)			(0.109)
Has knowledge of own field				0.109		0.084
				(0.116)		(0.126)
Knows other fields				0.003		-0.022
				(0.100)		(0.104)
Open personality					0.038	0.010
					(0.046)	(0.055)
Constant	2.539**	2.115	3.744**	2.134	2.267*	3.184*
	(1.277)	(1.362)	(1.616)	(1.347)	(1.322)	(1.700)
Observations	211	211	211	211	211	211
Pseudo R^2	0.014	0.025	0.022	0.020	0.018	0.038

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

9.4 APPENDIX 4: Engineering regression models

Wants to start company	Model1	Model2	Model3	Model4	Model5	Model6
Female	-	-	-	-	-	-
	0.652*** (0.250)	0.652*** (0.252)	0.744*** (0.258)	0.742*** (0.256)	0.675*** (0.252)	0.835*** (0.267)
Age	0.045 (0.042)	0.038 (0.042)	0.034 (0.043)	0.030 (0.043)	0.035 (0.040)	0.022 (0.043)
Average grade	0.029 (0.126)	0.032 (0.128)	0.034 (0.131)	0.054 (0.132)	0.039 (0.129)	0.078 (0.138)
Alert to new ideas		0.004 (0.086)				-0.050 (0.093)
Creative		0.147 (0.110)				0.073 (0.126)
Self-conscious		-0.028 (0.090)				-0.077 (0.096)
Wants autonomy in job			0.255** (0.103)			0.250** (0.115)
Wants high salary in job			0.041 (0.104)			0.017 (0.108)
Has knowledge of own field				-0.101 (0.125)		-0.133 (0.138)
Knows other fields				0.231** (0.117)		0.173 (0.125)
Open personality					0.082* (0.048)	0.055 (0.055)
Constant	-0.290 (1.261)	-0.827 (1.349)	-1.725 (1.491)	-0.653 (1.337)	-1.040 (1.321)	-2.027 (1.596)
Observations	158	158	158	158	158	158
Pseudo R^2	0.042	0.052	0.079	0.065	0.058	0.108

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

9.5 APPENDIX 5: Health regression models

Wants to start company	Model1	Model2	Model3	Model4	Model5	Model6
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Female	-0.766** (0.363)	-0.721* (0.376)	-1.058** (0.438)	-0.725* (0.373)	-0.837** (0.373)	-1.054** (0.492)
Age	0.091** (0.045)	0.100** (0.050)	0.082* (0.044)	0.094* (0.049)	0.091** (0.046)	0.102* (0.058)
Average grade	-0.004 (0.252)	-0.210 (0.283)	-0.018 (0.256)	-0.019 (0.255)	-0.007 (0.253)	-0.354 (0.314)
Alert to new ideas		-0.156 (0.201)				-0.284 (0.235)
Creative		0.339 (0.214)				0.434* (0.231)
Self-conscious		0.134 (0.149)				0.229 (0.172)
Wants autonomy in job			0.208 (0.220)			0.234 (0.253)
Wants high salary in job			0.211 (0.176)			0.342 (0.217)
Has knowledge of own field				-0.208 (0.257)		-0.382 (0.301)
Knows other fields				0.076 (0.202)		0.136 (0.264)
Open personality					0.067 (0.062)	0.037 (0.074)
Constant	-1.358 (1.980)	-1.822 (2.093)	-3.460 (2.444)	-0.542 (2.321)	-1.976 (2.081)	-3.507 (2.792)
Observations	56	56	56	56	56	56
Pseudo R^2	0.148	0.200	0.179	0.157	0.164	0.279

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

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