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Moderating variables of entrepreneurial interest among Spanish youth

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Abstract: Background: Despite the abundant scientific literature on entrepreneurship, there is still only limited information on young students' entrepreneurial intentions. The reasons may be generally found in the different conceptual approaches to entrepreneurial intention and particularly in the variables that regulate and act as antecedents to such intentions. This bias has generated different lines of investigation into the factors relating to entrepreneurial intention among students: one is centered on the variables that influence entrepreneurial intention, in particular, relational, educational, and psychological variables; and the other is centered on the antecedents of entrepreneurial intention, among which is entrepreneurial interest. Methods: In the present paper, we seek to analyze the relationship between the entrepreneurial interest of Spanish youth and a set of socio-educational, psychological, and health-related variables using principal component analysis. A previously validated ad hoc questionnaire was administered to 1,764 students (15-18 years old). Results: Notably, few Spanish youth expressed significantly high entrepreneurial interest; those who did were mostly men with a family tradition of entrepreneurial parents, who held high perceptions of their health and quality of life and considered it important in business to detect opportunities beforehand and to create employment. Conclusions: Their principal motives were to improve their professional development, to put their ideas into practice, and to achieve economic independence. This paper proposes the early detection of entrepreneurial interests in young people in order to reinforce these interests as potential long-term initiatives.

Keywords: youth; secondary education; entrepreneurial intention; entrepreneurial interest; psychological variables.

1. Introduction

Entrepreneurship is closely related to innovation, productivity growth, competitiveness, economic growth, the creation of employment, and even personal success [1-5]. In this regard, entrepreneurs innovate, transform their ideas into businesses, create companies, and develop projects to offer different products and services, thus contributing to the generation of employment and the economic and social wealth of the territory where they settle [6].

Equally so, entrepreneurship is an activity of great interest, especially due to the need to overcome the constant and burgeoning economic problems currently experienced by the majority of companies [7-11].

Recently, research interest in entrepreneurship has gained momentum in both the impetus given to it as an interdisciplinary research program [12-14] and in increased research [7,15,16] on the topic. Entrepreneurship affects almost 500 million people every year, due to the establishment of new firms, and is a key component of social and economic development and growth [17-21].

Considering these interactions, it is hardly surprising that entrepreneurship, as a multi-dimensional dynamic, has awakened unprecedented interest in the field of economics. Preferential variables have been selected for analyses associated with the growth of productivity, competitiveness, economic growth, job creation, and even personal success [3]; however, the growing need to make sense of entrepreneurial action and its consideration in public policy, including its implicit risks [22] has not only stimulated economic analysis, but has also promoted renewed interest in such socio-educational aspects as explanatory variables and, on occasion, determining entrepreneurial factors [23]. Entrepreneurial competition is emerging as a supra-national educational trend in both the European Union and other geo-cultural areas [24] together with the implementation of different strategies and training plans at a practical level that aim to increase the numbers of firms and the employability of the population [25-26].

However, despite scientific progress, the behavior and efficiency of the predictors of entrepreneurial initiatives and behaviors are unknown, making it difficult to explain a large part of the variations in this activity [27-29].

In addition, policies of international scope that have focused on measures to stimulate entrepreneurial activity, the removal of barriers through grants, and the simplification of administrative procedures have yet to achieve the expected results. The determinist conceptualization of international policies lacks the pluralist and interdisciplinary views required to foster entrepreneurial intention and decision-making, lacks pluralist and interdisciplinary viewpoints, to move forward with the task of business creation, and to understand the conditions that affect both the situation and the timeframe [30-32]. The need to drive investigative logic towards the proposal of new hypotheses in this field is evident.

Additionally, in Spain and the European Union, young people are among those most affected by the crisis and imbalance of the economic system and they are frequently unaware of the opportunities offered by entrepreneurship as an increasingly accessible alternative [33].

Theoretical background

The existence of the entrepreneur and the variables involved in entrepreneurial processes (psychological, socio-educational, and family or relational) have awakened the interest of part of the scientific community in determining which aspects influence individuals' entrepreneurial initiative. One thing these investigations agree on is the multidimensional nature of entrepreneurship [17-19,34-36]. In this context, we understand entrepreneurship as the creation of ideas, firms, and patents, as well as the process of management, even in cases in which those initiatives are not put into practice [8,9]. Entrepreneurship concerns a complex human capability due to the confluence of factors that make it difficult to identify effective predictors of entrepreneurial intentions and behaviors [33,37].

It is precisely the process prior to action where entrepreneurial intention and its modulating variables assume relevance to explain the two interrelated processes that constitute entrepreneurship -discovery of opportunities and their exploitation. These processes drive a large part of the variations of any subsequent activity, which is pointed out in the theory of planned behavior [5,38-41].

It is known that human intentionality immediately precedes human intentions, situating itself as a central factor and predictor of planned behavior [42-44]. Thus, entrepreneurial intention can arise as a planned behavior, both in the establishment of the firm and in the improvement of intra-enterprise entrepreneurship [45-49].

Despite the empirical validation of these proposals that have deepened our understanding of entrepreneurial initiatives, there is still only limited evidence on entrepreneurial intentions in different entrepreneurship contexts [4,50]. The investigation on entrepreneurial intention among students is at an exploratory stage that is undergoing theoretical and conceptual development [51]. In the opinions of Lanero et al. [47] and Liñan and Chen [39], the reasons for the lack of research on entrepreneurial intentions may be due to the researchers' different conceptual approaches toward entrepreneurial intention, in particular with regard to the variables that regulate and act as antecedents to such an intention [52-54].

There is agreement between researchers in that they consider entrepreneurial intention as a multidimensional construct that is determined by a varied set of aspects [55].

In addition, the excessive use of university students in convenience samples and the few studies with adolescents have limited the generalization of the results to the population of potential non-university entrepreneurs [56-58].

This bias has generated different lines of investigation in the study of the factors relating to entrepreneurial intention among students. The scientific literature covers two of the most relevant ones: one is centered generally on the variables that influence entrepreneurial intention and particularly on the variables of a relational or family nature, as well as educational and psychological variables; and the other is centered on the study of the antecedents of intention, including entrepreneurial interest.

The first of the research lines centered on the variables that influenced entrepreneurial intention, in particular relational, socio-educational, and psychological factors (see Figure 1). The insufficient predictive power of each one may be highlighted as well as the need to identify the psychosocial and educational profiles of future entrepreneurs to establish training actions [37,42,43,59].

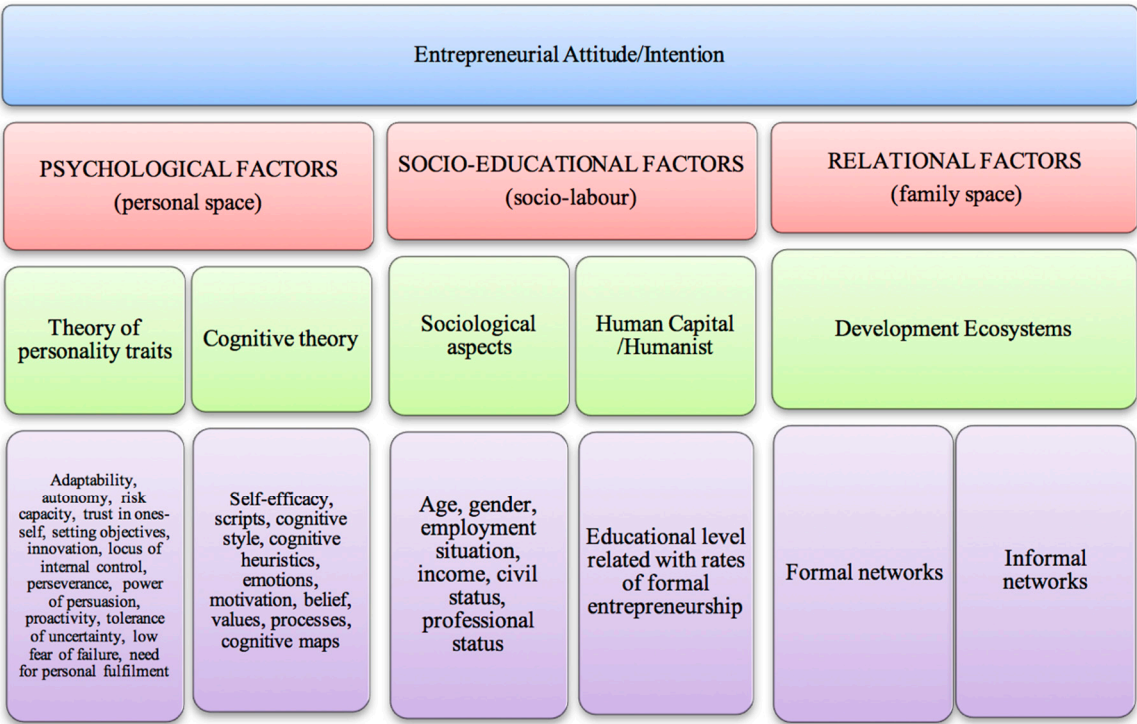


Figure 1. Factors influencing entrepreneurial intention, grouped according to the model of Sonnenfelt et al. [60]

Regarding relational factors (family space), the social models provided by the family setting positively influence the development of a professional career through self-employment [61,62], i.e., coming from a nuclear family with a business link means that the person is introduced little by little into the world of entrepreneurship [37].

With regard to socio-educational factors (a social space and a workplace), on the one hand, these factors are linked to sociological (demographic) aspects, such as age, gender, employment situation, income, civil status, and professional status [63]. On the other hand, they are linked to empowerment in society through education and are directly related to entrepreneurship rates, thereby calling for the inclusion of entrepreneurial competence in educational curricula [9,64-66].

Since the study of psychological factors (personal space) began, researchers have worked to identify the characteristics, attributes, and differentiating features of those people who develop entrepreneurship through two theoretical approaches: trait theory [15,67-69] and the cognitive approach [42,70,71]. The approach of trait theory is based on the assumption that entrepreneurs have different personality traits than do non-entrepreneurs. In other words, although we know that entrepreneurial behavior is a product of many influences, this theory defends the idea that the people who conduct entrepreneurial activity have a psychological profile that predisposes them to act in an entrepreneurial manner and thus differentiates them from others. In this research, we sought to determine the characteristics of the personality traits of the entrepreneur. Some of the attributes that usually coincide in the figure of the entrepreneur and that contribute to both setting a firm in motion and its success are: a propensity to assume risk and without any fear of failure, the need for personal self-realization, an internal control/locus of control, a need for autonomy and independence, a proactive personality, and entrepreneurial self-efficacy, among others [72,73]. The cognitive approach of the entrepreneur, in contrast, arises as a response to the limitations of trait theory. Its objective is to explain entrepreneurial behavior through cognitive processes. In other words, it seeks to explain whether entrepreneurs think and process information in different ways than non-entrepreneurs do and whether those differences could predict which people might start a business. These cognitive aspects are beliefs, values, cognitive styles, and mental processes. Among the most widely studied cognitive aspects in the literature, we highlight the following: self-efficacy, scripts, style and cognitive heuristics, cognitive maps, motivations, and emotions [73-74].

The second research line analyzes some aspects of the antecedents to entrepreneurial intention by centering on entrepreneurial interest; this analysis is based on the Social Cognitive Career Theory (SCCT) of Lent et al. [75,76]. SCCT explains the mechanisms through which individuals exercise control over the behaviors involved in the development of their careers; it is especially useful in explaining the initial phases of career decisions and the vocational behavior of adolescents and young adults immersed in their preparations for access to the world of work [47].

According to SCCT, the development of career goals (career choice process) is conceived as a sequence of interests, intentions, and behaviors that are presented as occupational choices where career intentions arise from the previous training of vocational interests [75]. The interests stimulate the career intentions or choice of goals (the plans of dedicating oneself to a certain activity and to achieve a certain result in the future), which increase the probability of making a career choice behavior (specific actions that mark the entry of the individual into an academic or professional line of work) [77,78]. From this standpoint, interests are defined as early patterns of attraction towards occupational-related activities [79], career intentions or set-choice goals are plans to dedicate oneself to a certain activity, and career choice behaviors are specific actions that mark the entry of the individual into a professional career [47].

The construct of entrepreneurial interest and its consequent impact on the construction of employment projection has typically been studied in adolescence [80,81], a time when the consolidation of professional interests is considered to start. In Spain, Lanero et al. [47] identified a positive and direct effect of entrepreneurial interest in university students on the intention to enter entrepreneurship and an indirect one on behavior through the mediation of the intention.

The current study

Here, the questions that we raise in this study are motivated by several aspects: an attempt to bring together two main lines of research in the study of entrepreneurial intention; the necessity of improving the field's knowledge of the individual and contextual processes involved in the

development of entrepreneurial initiative among young people; and the scarcity of works with secondary students. Therefore, we will try to answer certain questions: Do young students have a high or a low interest in entrepreneurship? Do these young people, with high or low entrepreneurial interest, perceive their health and quality of life in a different way from non-entrepreneurs? Which aspects do they consider to be more important when engaged in entrepreneurship? Are there differences between them in the motives and perceived difficulties when they evaluate entrepreneurship as their future choice of career? Is there an association between previous training in different methodologies and learning strategies and the high or low levels of entrepreneurial interest among Spanish youth today?

The objective of this study, in response to the above-mentioned gaps in theoretical investigation, proposes, through principal component analysis (PCA), to describe the association, in Spanish youth, between interest in entrepreneurship, as antecedents to entrepreneurial intention, and the principal variables that influence that intention. To do so, this study also examined socio-educational (gender, employment situation of parents, training received, and methodology), psychological (internal locus of control, proactive approach, need for achievement, self-efficacy, risk propensity, motivation, and perceived difficulties) and health and quality of life (physical attitude, physical health, corporal satisfaction, and satisfaction with life) variables. The results of this study will contribute to greater knowledge of entrepreneurial intention among young Spanish students and their potential training for business creation.

2. Materials and Methods

Design

This investigation is a questionnaire-based transversal descriptive study of a population with a probabilistic sample that forms part of a project coordinated at the national level and developed by the universities of Barcelona, Burgos, Deusto, La Rioja, and Santiago de Compostela and the UNED. In addition, the University Pablo de Olavide de Seville and the University of Valencia assisted with the data collection activities.

Participants and procedure

The study population was composed of 15- to 18-year-old secondary education students enrolled in teaching centers in Spain. The sampling size, 1,764 students, was calculated at a confidence level of 95% and an error margin of 2.3% on the basis of data contributed by the Ministry of Education, Culture and Sports for the academic year 2010-2011.

Simple random sampling was used, and the set proportions were conserved in each of the Autonomous Regions and at each of the general tiers of education (67% of students from pre-university -high school- studies; 32.7% of students from intermediate vocational training cycles; and 10.3% from basic vocational training). The last sampling units were selected during the 2013-14 academic year by selecting educational centers at random from each Autonomous Region on the basis of two criteria: selection of a rural center in each Autonomous Region and a proportion of one private-state-assisted center for every three public educational centers. The questionnaire was administered in a single session at each one of the selected centers to the number of students necessary to cover the sampling quota. This field work was developed during the months of March and June 2014. Prior to the application of the instruments, permission was requested from both the General Directorate of Education of each Autonomous Region and the directors of the educational centers, once they were informed of the rationale behind the research. Two previously trained researchers assisted in person at each center for the administration of the questionnaire in order to ensure a duly standardized protocol of action. Women comprised 50.1% of the sample (n=885) and men 49.9% (n=879). The average age was 17.6 years (SD=1.60) and 89.6% of the sample were of Spanish nationality (n=1,581).

The present study was funded by the Ministry of Economy, Industry and Competitiveness and the European Regional Development Fund (Spain), which requires no ethics committee approvals for studies, such as the present one, in the field of social and legal sciences.

Measures

The questionnaire was divided into various thematic sections due to the different interests of each of the collaborating universities: students; life at the educational center; leisure time; family life; health and quality of life; studies and the employment market in the future; and entrepreneurship.

A pilot test in eight Autonomous Regions was completed to validate the questionnaire, establishing the stratification of the final sample and its proportionality as criteria. The number of questionnaires amounted to 10% of the subsequent sample. The pilot survey and results were then evaluated by fourteen experts from seven Spanish universities, who approved the definitive version and rated it as highly reliable.

In pursuit of our objective, we analyzed the thematic sections relating to sociodemographic information, interest in entrepreneurship, and variables relating to health and quality of life, as well as psychological, educational, and occupational variables. In particular, the following questions were analyzed:

Q.1 – Q.10, forming part of the thematic section Students (family and demographic variables), where information was gathered on sex; year of birth; people living with you; number of people living in the house; family situation; family relation; country of origin of father, mother, and student; post code; weekly allowance; level of studies; and employment of father and mother.

Q.36, forming part of the thematic section Health and Quality of Life (health variable), gathered information on health and current quality of life. It was measured using a 5-point Likert Scale.

Q.37, forming part of the thematic section Studies and Employment Market (psychological variable), gathered information on situations in which studying helps and situations in which working helps. It was measured using a 5-point Likert Scale.

Q.38, forming part of the thematic section Entrepreneurship (psychological variable), gathered information on the most important aspects for entrepreneurship. It was measured through the selection of the three most important aspects.

Q.40, forming part of the thematic section Entrepreneurship (psychological variable), gathered information on the degree of interest in entrepreneurship. It was measured using a 5-point Likert Scale.

Q.42, forming part of the thematic section Entrepreneurship (psychological variable), gathered information on the motives for creating a firm. It was measured through the selection of the three most important motives.

Q.43, forming part of the thematic section Entrepreneurship (psychological variable), gathered information on the difficulties of creating a firm. It was measured through the selection of the three most important difficulties.

Q.44, forming part of the thematic section Entrepreneurship (psychological variable), gathered information on the presence of different methodologies and capabilities (psychological variables) in training. It was measured using a 5-point Likert-type scale.

Data analysis

After selecting the questionnaire questions, a code was used to identify each item, thereby leaving a set of 1,633 items and 92 features per item.

In order to analyze such a multidimensional dataset, PCA has been applied. It is a statistical method of data analysis based on re-dimensioning the data (reducing the number of features); in other words, the end-purpose was to reduce the amount of features in a dataset with multiple features, seeking to minimize the loss of information, as far as possible, for the new data. Differentiating from feature selection, where the most informative features from the original dataset are selected, PCA lies in the category of feature extraction, where original features are combined to generate a reduced set of new features.

In the case of PCA, the new features (principal components) obtained from that re-dimensioning are the result of a linear combination of the original variables and, in turn, will be independent from each other. In present paper, every item in the dataset is visualized through a 2D display where the coordinates are the principal components. Thus, the obtained representation can be visually analyzed in order to get deep knowledge from a previously unknown dataset. This is the usual methodology in the field of Exploratory Projection Pursuit.

PCA was initially developed by Pearson [82] at the start of the 20th century and then studied and further developed by Hotelling [83]. PCA has two possible functions: the optimal projections of a general N -dimensional space onto a space of reduced dimensionality (the principal components are the first step to identify the possible latent or non-observed variables that generate the data) and it permits the transformation of the original and generally correlated variables into new decorrelated variables, facilitating the interpretation of the data. If one begins with a set of multivariable data, the end-purpose is to map that set onto a smaller number of variables, in decreasing order of importance and with minimal loss of information, in such a way that the resulting variables are a linear combination of the original variables and independent from each other.

The orthogonal base that maximizes the variance of the data must be found in order to project the data onto a space of reduced dimensionality. To do so, it is necessary to establish the projection that has the maximum variance, which will correspond to the first vector of the base (first principal component). Subsequently, one must determine the projection that contains the highest remaining variance, which will correspond to the second vector of the base (second principal component), and so on successively. Projecting the data onto the first principal component will reduce the dimensionality that will be accompanied by as much variance in the data as possible.

According to Bishop [84], PCA may be described as a map of vectors, X^d , projected onto an N -dimensional space on vectors Y^d in an M -dimensional space, where $M \leq N$. X may be represented as a linear combination of a set of N orthonormal vectors, W_i :

$$x = \sum_{i=1}^N y_i W_i$$

The W_i vectors satisfy the following relation of orthonormality:

$$W_i^t W_j = \delta_{ij}$$

where, δ_{ij} is the Kronecker delta.

3. Results

The questionnaire data were analyzed with PCA and the obtained projections is shown in Fig 2, where each point is a representation of one of the 1,633 cases with their original 92 features. In the analysis of the image, groups of data can be easily identified, and they have been labelled consecutively (Figure 2).

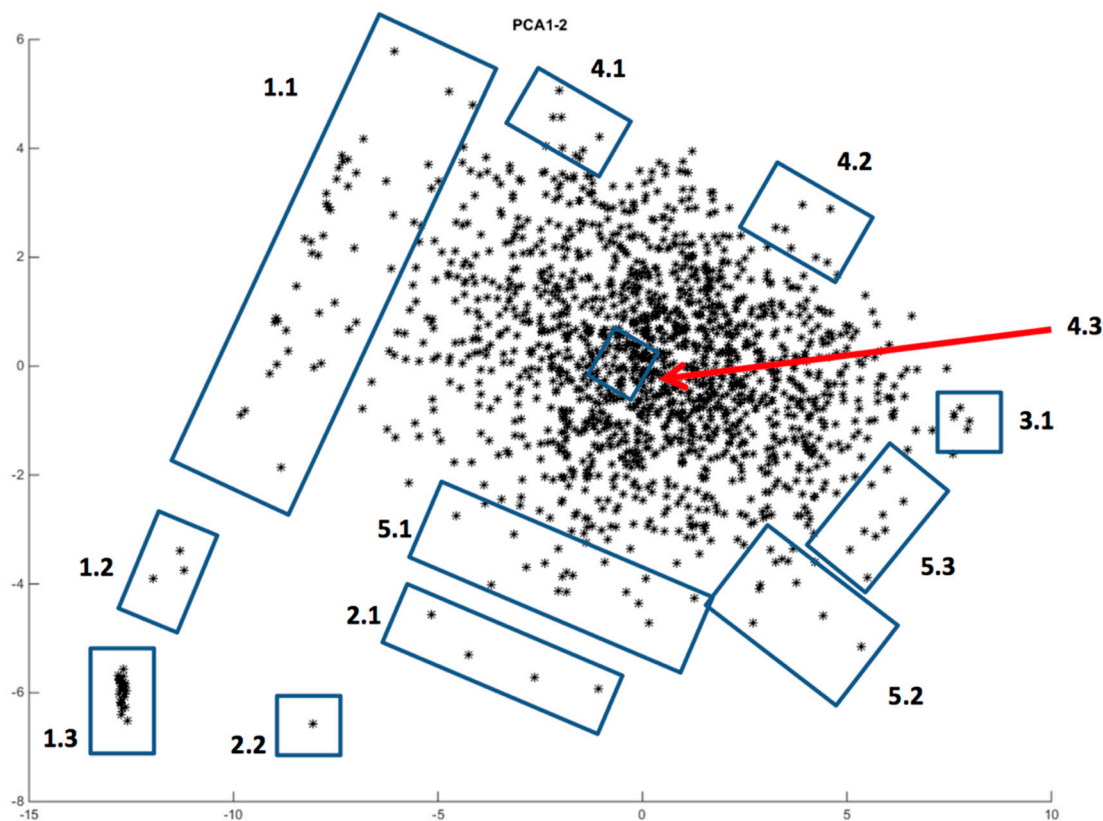


Figure 2. Results of the PCA analysis of the data.

For each one of the groups identified in Fig 2, the average value of responses to question Q.40 referring to the degree of the respondents’ entrepreneurial interest has been calculated as well as the number of participants that are gathered in each group. These figures are shown in Table 1:

Table 1. Average scores of entrepreneurial interest and number of participants per group.

PCA Group	Average entrepreneurial interest	Number of participants
1.1	2.13	47
1.2	1.76	3
1.3a	1	25
2.1	1.5	4
2.2	1	1
3.1	2.6	5
4.1	3.22	9
4.2	4	8
4.3 b	2.5	30
5.1	3	18
5.2	3.08	12
5.3	3	9
Total number of participants		171

^a The data extracted from group 1.3 are excluded from the results of this study because the 25 participants presented invalid replies in the majority of the variables under study.

^b Group 4.3, because of its position on the map, would represent the remainder of the participants (1,462 participants) who were not included in any of the groups obtained with PCA.

The data reveal two large groups: one with significant interest (high entrepreneurial interest group; M=3.10) and another with little entrepreneurial interest (low entrepreneurial interest group; M=1.59) (see Table 2). The scores for the low entrepreneurial interest group ranged between 0 and 2.5 and those of the high entrepreneurial interest group between 2.6 and 5.

Table 2. Representation of the average scores in entrepreneurial interest according to the PCA projection groupings.

	PCA Group	Average entrepreneurial interest	Number of participants	Average global entrepreneurial interest of the PCA groups	Total number of participants in the PCA groups (146 students)
High entrepreneurial interest groups ^a	4.1	3.22	8	3.10	61 (41.8%)
	4.2	4	9		
	3.1	2.6	12		
	5.3	3	18		
	5.2	3.08	9		
	5.1	3	5		
Low entrepreneurial interest groups	4.3	2.5	30	1.59	85 (58.2%)
	1.1	2.13	47		
	1.2	1.67	3		
	2.1	1.5	4		
	2.2	1	1		

^a If Figure 1 is observed, the arrangement of the PCA groups with high entrepreneurial interest forms an open U on the left hand side, i.e., surrounding the principal point cloud.

Considering that group 4.3 represents the remainder of points not found in any PCA group (1,462 students) and therefore had low scores for entrepreneurial interest, it could be considered that 61 (3.8%) students of the whole sample presented high levels of entrepreneurial interest and 1,547 (96.2%) students presented low levels of entrepreneurial interest.

Having arranged the groups in accordance with the PCA projections and the scores for the entrepreneurial interest variable, each group was characterized in accordance with the responses to the questions that were introduced to constitute the unit of analysis. The results shown in Table 3 were obtained from the first block of questions, referring to the data profile (Q.1 – Q.10) of the students in the survey.

Table 3. Percentages of all student survey responses by demographics.

		High entrepreneurial interest group	Low entrepreneurial interest group
Sex	Women	38%	41%
	Men	62%	59%
Education of parents	None	12%	2%
	Primary	0%	8%
	Secondary	72%	87%
	Higher	16%	3%
Education of mother	None	6%	3%
	Primary	19%	3%
	Secondary	69%	89%
	Higher	6%	5%
Employment of father	Employment contract	12%	45%
	Self-employed	37%	22%
	House husband	0%	0%
	Unemployed	25%	11%
	Retired	13%	11%
	Pensioner	13%	11%
Employment of mother	Employment contract	23%	50%
	Self-employed	14%	37%
	House wife	27%	0%
	Unemployed	27%	0%
	Retired	4%	0%
	Pensioner	5%	13%

Both the high and low entrepreneurial interest groups were composed mostly of men (62% and 59%, respectively), though the group with low entrepreneurial interest was more balanced between men and women. For the most part, the parents of the members of both groups were educated up to secondary studies. The parents of the group with high entrepreneurial interest were, principally, self-employed (37%), whereas the parents of the low entrepreneurial interest group were, principally, employees (50%). The mothers of the high entrepreneurial interest group were in equal percentages either unemployed or housewives, whereas the mothers of the low entrepreneurial interest group were principally working as employees.

The average scores obtained by the PCA groups in the block of questions (P.36) referring to health and quality of life (Figure 3) showed that the members of the group with higher entrepreneurial interest were more satisfied with their health and quality of life. In particular, they obtained higher scores in a “Good state of health at present” (M=4.15), “Satisfaction with bodily appearance” (M=3.64), and “Good physical form” (M=3.57). In addition, they considered themselves to be physically active (M=3.45) and, in general, they were happy with their lives (4.08), in contrast to the remarkably low scores of the group with low entrepreneurial interest (1.76) in response to this last question (“In general, I am happy with my life”). On the other hand, the only variable where both groups scored in a similar way, above the average, was in contentment with their bodily appearance, i.e., the students from post-compulsory secondary education in this sample were content with their bodies.

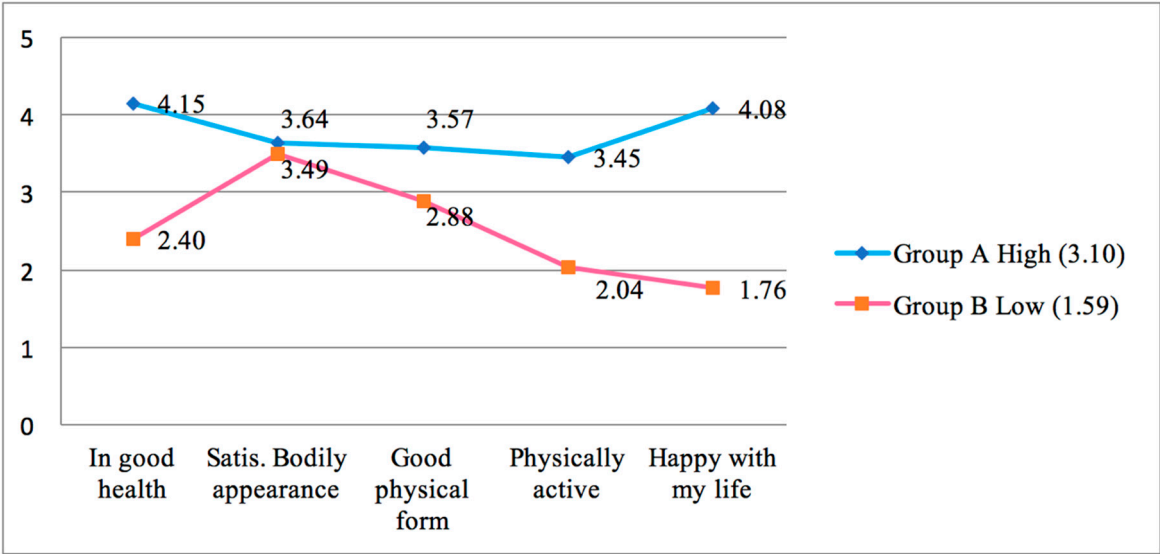


Figure 3. Average scores referring to the health and quality of life of young people.

With regard to the ways in which studying, and working will help in the future (Q.37) (Figure 4), the high entrepreneurial interest group had high scores in all of the questions, over 3.84 points, whereas the low entrepreneurial interest group returned lower scores (under 2) in all the questions under study. The sole exception where the high entrepreneurial interest group obtained a low score (M=1.83) that coincided with the low entrepreneurial interest group (M=1.68) was in reply to the question “I prefer to look for work than to continue studying.” This result means that both groups preferred to continue studying than to look for work at the time of the survey. All the questions for this variable were related to the Internal Locus of Control (ILC): a belief that the actions that one is doing will determine the results that are obtained through the abilities, effort, and skills that a person holds and not so much the actions that others carry out [85].

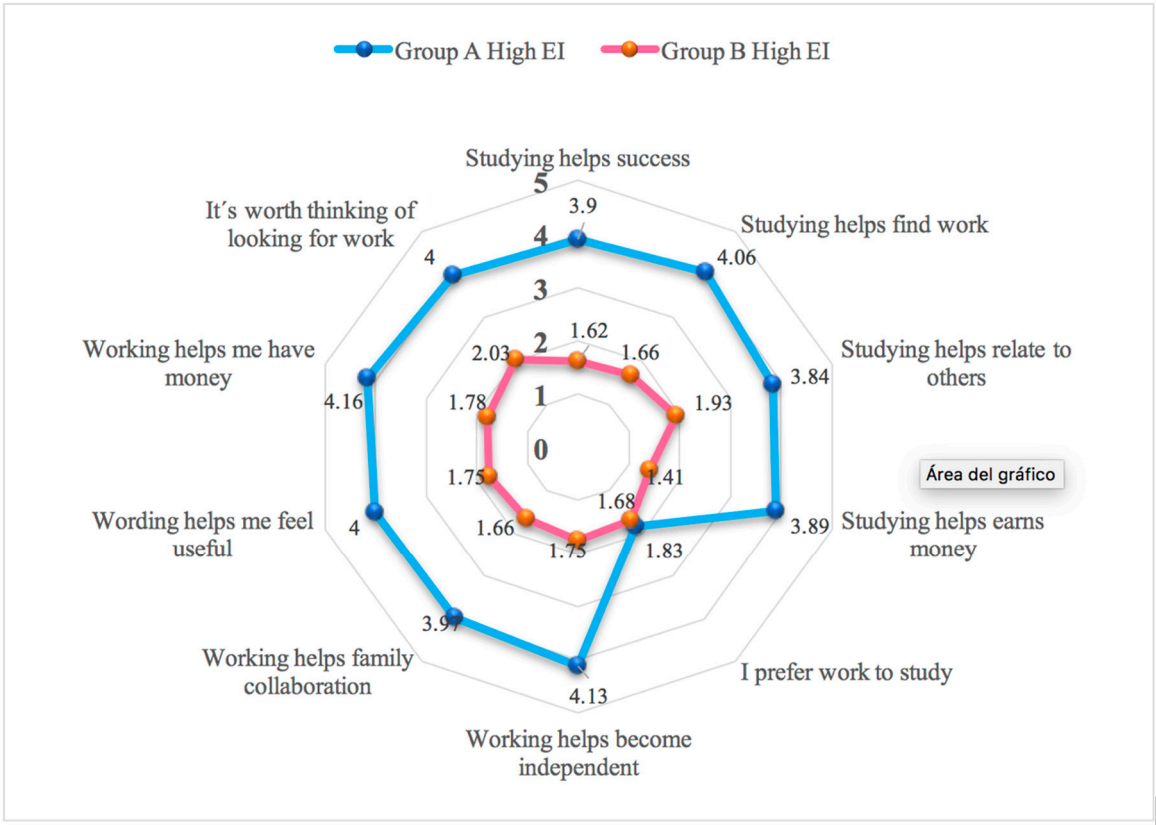


Figure 4. Average scores referring to the helpfulness of studying and working in the future.

In question Q.38, the young people were asked to point to the three aspects that they considered the most important for entrepreneurship (Figure 5). The high entrepreneurial interest groups considered “Improve your professional development” (69%), “Generate new jobs” (59%), and “Detect business opportunities” (57%) as the most important aspects, whereas the low entrepreneurial interest group chose “Detect business opportunities” (59%), “Improve professional development” (47%), and “Assume some risk” (44%). Therefore, both groups coincided in pointing to the detection of business opportunities (an aspect related to proactive personality) and improving professional development (a characteristic related to the need for achievement) as important aspects when engaging in entrepreneurship.

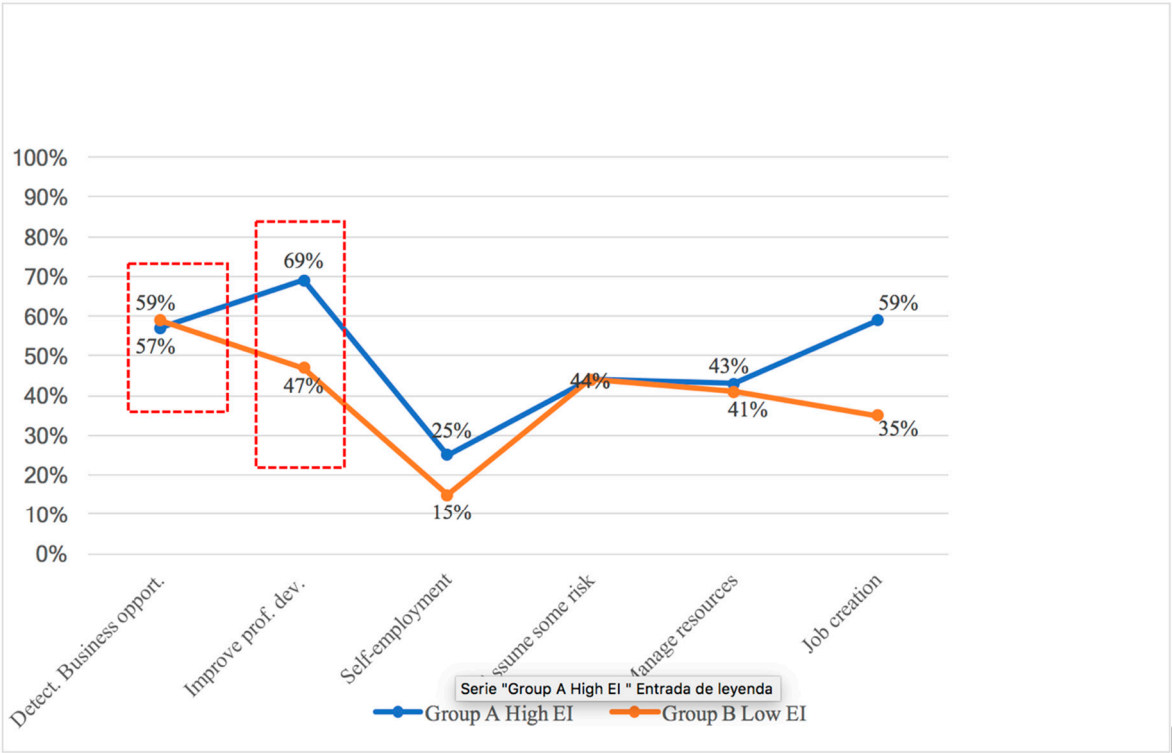


Figure 5. Percentage choices of the most important aspects of entrepreneurship.

The results of the questions on motivation (Q.42) and difficulties (Q.43) for entrepreneurship are shown in Figures 6 and 7, respectively. The principal motives for the high entrepreneurial interest group were “Put my ideas into practice” (72%), “Economic independence” (49%), and “Generate work for others” (49%), whereas the low entrepreneurial interest group chose “Earn money” (49%), “Put my ideas into practice,” (46%) and “Economic independence” (38%). Both groups coincided (with different percentages) in pointing out “Putting into practice my ideas” (related with the intrinsic motivation) and “Economic independence” (associated with extrinsic and autonomous motivation) as principal motivations for entrepreneurship. Interestingly, students with high entrepreneurial interest highlighted job creation as both an important aspect and as a motive for entrepreneurship (an aspect related to the necessity for achievement and self-efficacy).

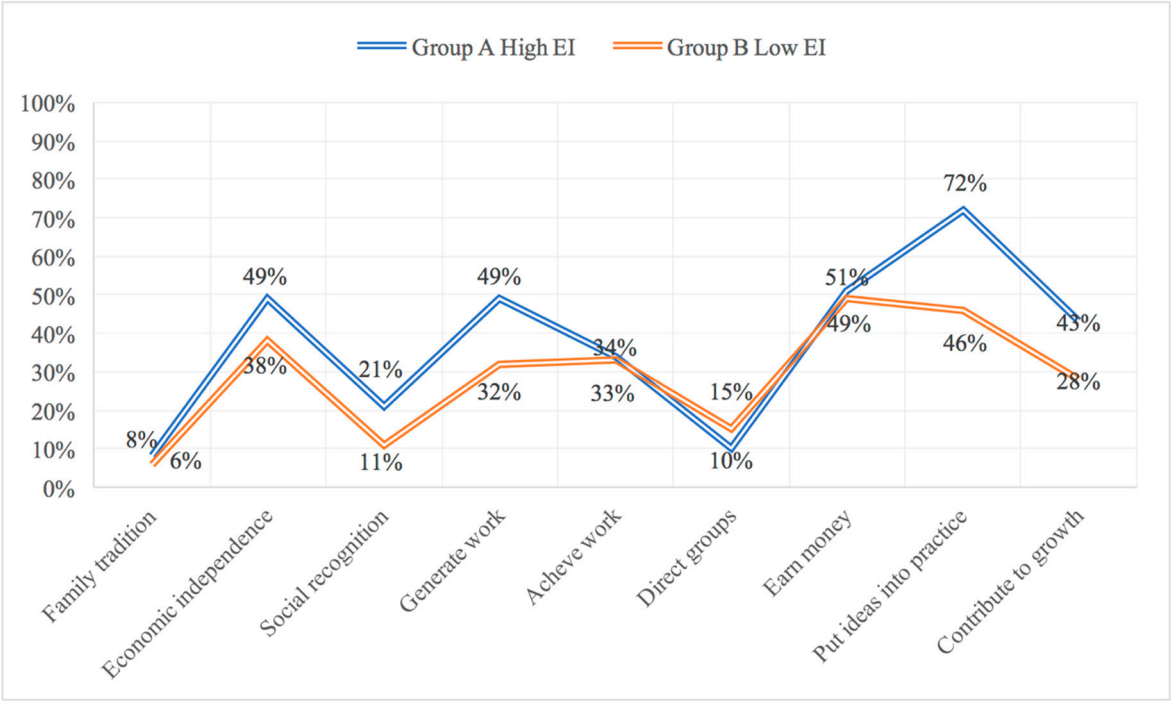


Figure 6. Percentage choices by groups for motivations for entrepreneurship.

The difficulties perceived for both the high and the low entrepreneurial interest students (with different percentages of choice), were, from 1st place to 3rd place, “Lack of money to initiate the activity,” “Assume risks,” and “Fear of failure” (see Figure 7).

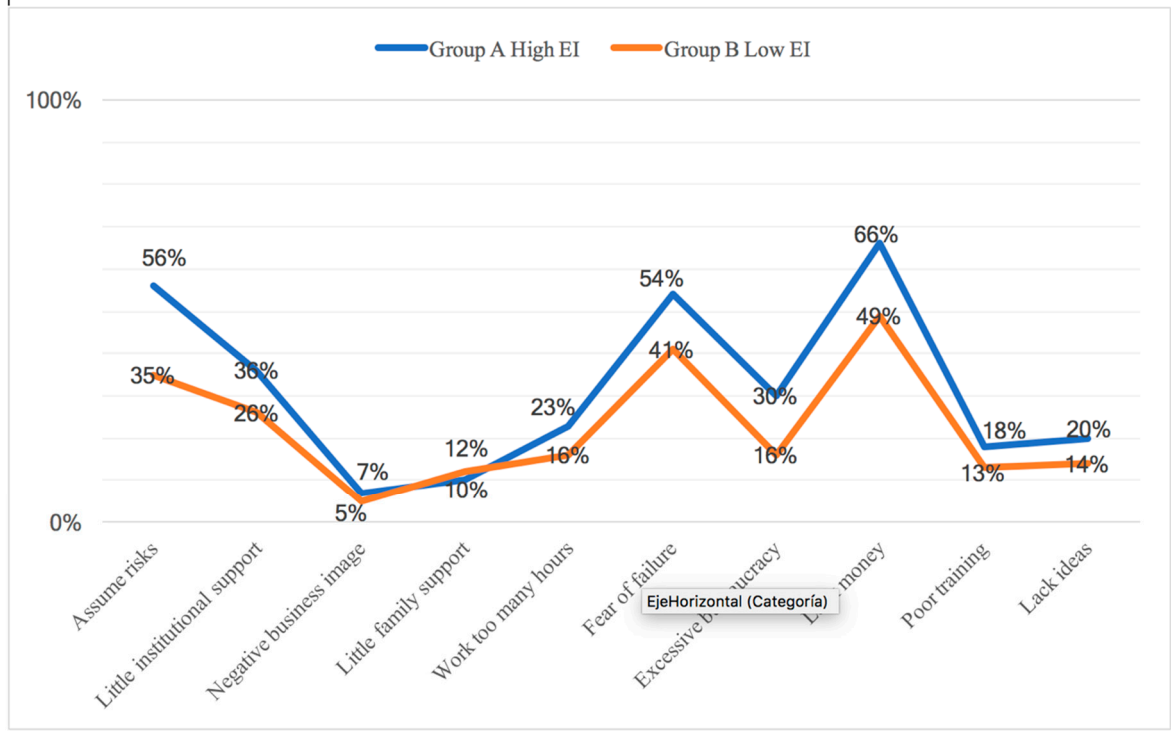


Figure 7. Percentage choices of reasons for perceived difficulties of entrepreneurship.

Figure 8 shows the scores for the replies to the questions in section Q.44 that referred to the effects that various methodological aspects (meth.) and capabilities (cap.) have had on the training of the people in the survey. The group with high entrepreneurial interest presented higher scores in all of the variables under study, with average scores of over 3.51, whereas the group with low entrepreneurial interest obtained low scores in all the variables, not exceeding an average of 1.93.

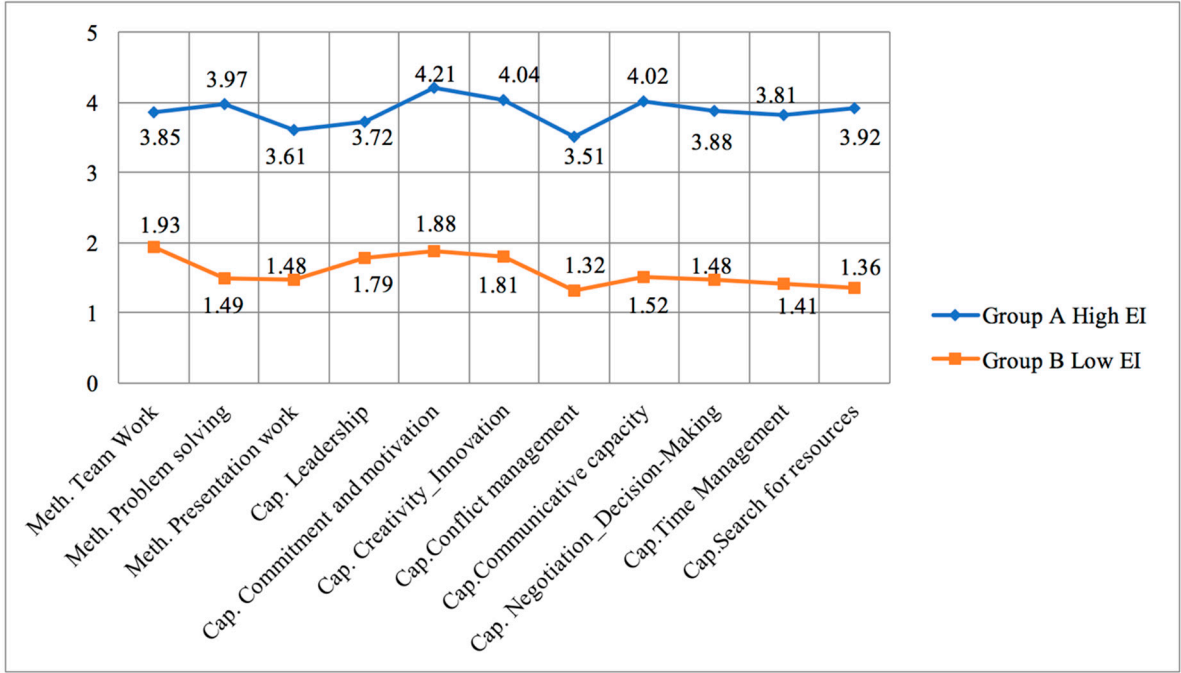


Figure 8. Average scores for the presence that different aspects had on

4. Discussion

The objective of this investigation was to examine entrepreneurial interest among Spanish youth, as a direct antecedent of entrepreneurial intention, and its relation with various socio-educational, psychological, and health-related variables that influence intention.

In the study on socio-educational variables, higher levels of entrepreneurial interest were found among men than women, in harmony with national and international investigations that showed higher entrepreneurial aspirations among male students [86-88].

Additionally, students with high entrepreneurial interest have parents who are mainly self-employed workers, in accordance with the scientific literature in which the family background is studied and one of the parents is an entrepreneur, with a more attractive perception of entrepreneurship as a professional career [42,66,89-91].

With regard to training, greater training in different learning strategies and capabilities related to entrepreneurship generated greater entrepreneurial interest, i.e., entrepreneurial training generates a positive effect on the perceived desire towards entrepreneurship [9,66,92]. Such training stimulates the development of entrepreneurial behavior, increases the knowledge of creating and managing firms, promotes the personal characteristics associated with entrepreneurship, such as motivation to achieve, ILC, and self-efficacy, and raises student awareness of the viability of self-employed entrepreneurship as a professional career [7,93].

With regard to the psychological variables, one principal variable is the ILC, measured in this study through the importance that study, and work has in the future. In all the aspects of this dimension, the students with high entrepreneurial interest scored more highly. These students therefore tend to attribute the success or failure of their behavior to internal causes [94,95]. The investigations point to the ILC as a characteristic that is strongly associated with entrepreneurs,

although not exclusively so, given that it is also found in people who are successful whether or not they are entrepreneurs [96,97].

Other dimensions found in students with high entrepreneurial interest are a proactive approach (they consider it important for entrepreneurs to identify business opportunities) and the need for achievement (they consider that entrepreneurship helps them to improve their professional development). In this regard, the scientific literature makes it quite clear that the need to achieve is an attribute related to entrepreneurial intention. Fuentes et al. [98] pointed out that students who express a great need for achievement express an interest in assuming tasks that offer a challenge and that test their capabilities, a situation that is transposed into an attitudinal lifestyle through the creation of their own business [94]. Proactivity is another of the indispensable factors that Covin et al. [99] included in the so-called entrepreneurial orientation, in reference to the implementation of what was necessary for entrepreneurship, which implies perseverance, adaptability, and a willingness to assume responsibility for failure [49].

With regard to the principal motivations to create a business, the students with high entrepreneurial interest pointed to aspects relating as much to intrinsic (putting their ideas into practice) as to extrinsic (economic independence) motivations. Many of the works on the analysis of the reasons for career choice linked to business initiatives [100] have found that both intrinsic and extrinsic motivations are important for predicting entrepreneurial intention and behavior. Likewise, these motivations are related to autonomy and independence, important reasons that lead to entrepreneurship [98].

Notably, students with high entrepreneurial interest coincided in considering that the capability to create employment for others is important and motivates them to be entrepreneurs. This last dimension is the most potent predictor of the completion of a task or behavior. Various authors have provided evidence that identifies self-efficacy as a crucial factor in whether an individual manages to develop entrepreneurial capability [48,49,101,102].

Another question studied in this investigation is the perceived difficulty of creating a firm. All the students pointed to a lack of money to initiate the activity, having to assume risks, and the fear of failure (these last two aspects are highly related). With regard to the first difficulty, the literature insistently repeats that the achievement of the necessary economic resources for the establishment of a firm is, effectively, one of the principal obstacles to entrepreneurship [37,103].

In relation to risk and the fear of failure, although entrepreneurial intention is related to moderate levels of a propensity toward risk as a personality trait [48,104], in this investigation it was presented as a difficulty. On this point, García et al. [67] pointed out that the fear of business failure puts a significant brake on the opening of new businesses. It would be convenient to investigate whether these students with high entrepreneurial interest have within their personality profiles a certain propensity toward risk, regardless of whether they assess the fact of having to assume risks as a difficulty.

Finally, with regard to the health and quality of life variable, greater satisfaction was observed in all of the aspects analyzed by the students with high entrepreneurial interest. In other words, it is a question of young people who are in a good state of health, in good physical form, physically active, very satisfied with their bodily appearance, and very content with their lives. The researchers hardly analyzed the relation that exists between entrepreneurial interest and variables of health. Few authors [42] have pointed to the importance of managing emotions as difficulty with these emotions negatively affects entrepreneurial attitudes and consequently entrepreneurial intention. Further, Rodríguez et al. [44] found that Colombian students considered that entrepreneurship meant they were able to achieve the values related to a good quality of life, as opposed to French students, who considered entrepreneurship of no help in acquiring a good quality of life.

The relation found between health and entrepreneurial interest was attractive and novel; it suggests that a better quality of life equals a higher entrepreneurial interest; perhaps this relation is measured by variables like self-esteem and self-efficacy. This aspect is left in the air as an open question and merits further investigation.

5. Conclusions

Out of a necessity to advance our knowledge of both the individual and contextual processes through which entrepreneurial intention develops in young people and with a view to achieve greater efficiency in the availability of supporting resources through education, PCA analysis was applied to the study of low and high entrepreneurial interest (as antecedents to entrepreneurial intention) and its relation with certain variables that influence entrepreneurial intention among Spanish youth, observing how their entrepreneurial interest determines the distribution of the projections of variance.

Young people who express a high interest in entrepreneurship as a vocational choice were a low percentage of the total population under study. In addition, they were mostly men with an earlier family tradition of entrepreneurship. They can be characterized as students with high perceptions of their health and quality of life, attaching importance to the capability to create employment for others (need for achievement and self-efficacy) and seeing it as a motivation for entrepreneurial action. They considered that to be able to create a firm, a business opportunity (proactivity) must be previously detected and their principal motivations to do so are “to improve their professional development,” “to put their ideas into practice,” and “to achieve economic independence” (intrinsic and extrinsic motivation, autonomy, and independence). The principal difficulties perceived when engaged in entrepreneurship were “lack of money to initiate the activity,” “having to assume risks,” and “the fear of failure.” Finally, it may be added that these students had received training in different strategies of learning and the capabilities related to entrepreneurship.

ILC, intrinsic and extrinsic motivation, searching for and identifying opportunities, self-efficacy, a positive attitude towards the entrepreneurial behavior needed for self-sufficiency, independence, a need to achieve (self-fulfillment), family entrepreneurs, and training in entrepreneurial skills are all positively associated with entrepreneurial intentions in surveys of Spanish youth [67,68,94,96,104,105].

Consequently, these results reveal the importance of early detection of entrepreneurial interests among secondary school students so that they can be reinforced as potential business initiatives in the long term.

The limitations of this work are related to the transversal nature of the study since the causal relation between the variables under study and entrepreneurial interest cannot be detected. Therefore, in a future investigation, longitudinal designs are proposed in which evidence might be unearthed regarding the relations between the variables in the context of the effects that are identified.

As a final contribution of this work, the utility of PCA has to be highlighted as well as its application in investigations of a social character [83,84] as it yields patterns that deserve in-depth study and permit decision-making.

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