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Towards Quality Education: An Entrepreneurship Education Program for the Improvement of Self-Efficacy and Personal Initiative of Adolescents

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Abstract: In recent decades, youth unemployment has been the focus of attention of international and community bodies in the area of social rights. Specifically, there is a need to promote attitudes and skills to access employment, decent work, and entrepreneurship. The measures implemented have not been effective. In 2023, Spain had the highest youth unemployment rate in the European Union (29.6%). An improvement in the level and quality of education and training of young people would reduce their level of unemployment. Entrepreneurship education is, therefore, a necessary value in the society of the 21st century since it is a tool for the development and growth of the younger population. In the entrepreneurship education model proposed in this study for adolescents, we focus on the capacities of self-efficacy and personal initiative as precursors of entrepreneurial behavior. This paper analyzes the differences between the mean values of the variables before and after the implementation of the educational program and the influence or correlation between the variables. The main results are threefold: (i) the educational program implemented improves the mean values of the two variables analyzed; (ii) self-efficacy exerts a positive or direct influence on personal initiative, and (iii) the educational program improves or reinforces the positive influence of self-efficacy on personal initiative.

Keywords: entrepreneurship education; program; self-efficacy; personal initiative; adolescents; social rights; youth unemployment; quality education

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1. Introduction

1.1. Need for Entrepreneurship Education

In the last decades, youth unemployment has drawn the attention of international and community organizations (Dasho 2022; Pennoni and Bal-Domańska 2022). Job insecurity, low social protection levels, and the increase in poverty and social exclusion are deeply embedded in well-being models, hindering the decent social integration of younger generations and their expectations of personal and professional development (Hernández-Bejarano 2022). Thus, in the year 2022, the Commissioner for Jobs and Social Rights of the European Union (EU) stated that: "it is our priority to help young people to integrate in the job market, especially those with greater difficulties, since they also have many strengths" (European Commission 2022). To attain this goal, initiatives are being developed with the support of important economic funds. However, the data published by Eurostat (2023) confirm two verified facts in current reality: on the one hand, the measures proposed by the EU have not produced the expected results in terms of effectiveness, and on the other hand, there are important inequalities regarding youth unemployment among member states.

For example, Germany has a remarkably low youth unemployment rate (5.4%), which is the lowest in the EU. On the contrary, Spain has the highest youth unemployment rate in the EU. In the year 2023, approximately 29.6% of employable people under 25 years of age will not have the option of integrating into the job market. Thus, Spain is even above other Mediterranean countries like Greece and Italy, where the percentage of unemployed youths is around 27% and 23%, respectively. These values are almost twice as high as those reported in the countries of the Eurozone and the European Union (Fernández 2023).

Youth unemployment casts, for this population, a harsh reality dominated by precariousness, the lack of opportunities and decent work, discouragement, early education dropout, and an alarming increase of two subgroups of young people at considerable risk of social exclusion (Gómez-Torres and López-Martínez 2019): the so-called NEETs (young people who are Not in Education, Employment, or Training) (Pennoni and Bal-Domańska 2022), representing an average of 13.7% of the EU-28 population aged 15–29 years (Eurostat 2022; Liotti 2022); and "poor workers", thus called for the characteristics of their labor relationships, which are dominated by their temporary nature and low salaries. This certainly worrying problem is evidenced by the data reported in different studies. According to the International Labor Organization (ILO 2023), over 68 million youths (women and men) worldwide are looking for jobs, and more than 123 million are working but live in poverty. In the EU, as of December 2022, almost 3 million young people were unemployed. These numbers reflect the degree of effectiveness of the measures implemented to stop this situation (Liotti 2022).

The United Nations (UN 2023), now more than ever, insists on the urgent need to comply with the Sustainable Development Goals (SDG) to "ensure the well-being of people, economies, societies and our planet". In this line, the studies conducted by the ILO (2023), which address the efficacy of the active employment policies and national programs focused on youth employment, underline the need to help young people find decent jobs in order to attain the SDGs.

At the international level, the 2030 Agenda addresses the situation that youths are going through in terms of employment (Sierra-Zamora et al. 2021). Specifically, this agenda establishes 17 global objectives, which are interconnected and designed to "attain a better and more sustainable future for everyone". Specifically, SDG 4 aims "to guarantee an inclusive and equitable quality education and promote learning opportunities for everyone". Its Goal 4.4 establishes for the year 2030 the aim of considerably increasing the number of youths and adults with the necessary technical and professional competencies to access the world of working, decent employment, and entrepreneurship (UN 2015). In turn, SDG 8 aims to "promote inclusive and sustained economic growth, full and productive employment, and decent work for everyone". Its goal 8.3 demands the promotion of development-oriented policies that support productive capacities, the creation of decent jobs, entrepreneurship, creativity, and innovation, as well as the formalization and development of small and medium companies through access to services (UN 2015).

One of the main objectives of the European Pillar of Social Rights Action (European Commission 2017) is to increase the employment rate of the active population (18 to 64 years of age) to 78% by the year 2030. Moreover, it establishes the goal of reducing the rate of NEET youths aged 15–29 years to 9% by improving their job expectations. In this context, it encourages the member states to apply the reinforced Youth Guarantee, with a particular focus on quality offers that support a stable integration in the job market, making use of the financial support of the EU.

1.2. Spanish Context

In Spain, the Youth Guarantee Plus Plan 2021–2027, among its different objectives, aims to improve the qualification of young people to find a job, approach the search for new employment opportunities, reduce school dropout, promote youth entrepreneurship, and make use of opportunities derived from digital and ecological transition (Ministerio de Trabajo y Economía Social 2020, 2023). This plan consists of the same six axes as the Spanish

Strategy for Employment Activation: counseling, training, employment opportunities, equal opportunities in access to employment, entrepreneurship, and improvement of the institutional framework. This plan grants continuity to the already developed Action Plan for Youth Employment 2019–2021 (Servicio Público de Empleo Estatal 2018) and the Strategy for Youth Entrepreneurship and Employment 2013–2016 (Instituto de la Juventud de España 2013). In 2022, the Spanish Government implemented measures gathered in (Royal Decree-Law 32/2021 2021), of December 28th on urgent measures for labor reform, guarantee of employment stability, and the transformation of the job market, whose aim was to fight temporality, especially among the groups that were most affected by the latter, such as young people. Moreover, the labor reform aimed to increase the labor rights of workers and productivity, as well as to promote training and safety in the workplace.

To sum up, the different organizations recommend interventions that promote employment growth, the development of skills, self-employment, the improvement of labor conditions, social protection, and dialogue (ILO 2020). With these goals, the policies that should be worked on must be aimed at supporting employment and the maintenance of income via financial support and fiscal reductions for companies, as well as measures of employment preservation for workers through agreements for the reduction of working hours, partial unemployment benefits and expansion of social protection, and social-care and public-employment programs. However, this should be done from a differentiating approach, i.e., focusing on the people, their entrepreneurial attitudes and initiative, and the quality education they receive (Schmiedeknecht 2020).

The training of youths as an essential element for labor insertion is among the aspects of special interest. In this scope, there is a generalized consensus in the scientific community establishing that an improvement in the education level and quality of young people would reduce their unemployment rate (Moreno-Mínguez 2015). Therefore, entrepreneurship education is a necessary value in 21st-century society, as it constitutes a tool for the development and growth of the younger population (Bernal-Guerrero 2021).

This is a new theoretical approach to education proposed from a humanistic perspective. Thus, this view also contemplates the development of a series of personal and social values oriented toward the construction of life projects, enabling the construction of a true entrepreneurial identity. The aim is to bring the entrepreneurial culture and the world of business to the school and educational practice through the creation of joint learning communities, where certain personal capacities are developed among the students: self-confidence, leadership, resistance to failure, creativity, innovation, optimism, initiative, autonomy, responsibility, and personal maturity (Bernal-Guerrero and Cárdenas-Gutiérrez 2021). These capacities indicate a clear concern for entrepreneurship education understood as a project of humanizing education.

For this reason, this paper addresses self-efficacy, as it positively influences the capacities of creativity, leadership, personal control, and achievement orientation. The greater the self-efficacy, the greater the creativity, the greater the leadership, and so on. Personal initiative is what is needed to set in motion the practical implication of the development of these capacities. For example, a person may be creative but may not take creative actions. To put it into practice and develop that capacity requires personal initiative.

1.3. Self-Efficacy and Personal Initiative

Some research associated with entrepreneurial attitudes is based on intention models and/or the theory of planned action (Krueger and Carsrud 1993; Steinmetz et al. 2016). Framed in this theory (TPB, Ajzen 1991), self-efficacy and personal initiative are antecedents of entrepreneurial intention, and in turn, self-efficacy is an antecedent of personal initiative. In this sense, self-efficacy constitutes a fundamental piece to achieving the goals, effort, and actions of an individual. If the person believes in him/herself to perform the action, he/she will persist in taking on any challenge that is presented to him/her (Newman et al. 2019). It is at this point that the initiative begins since the individual trusts himself, and this leads him to transform his ideas into something new or improve something that already

exists. Thus, he adopts a proactive approach with self-initiated behaviors that help him to overcome obstacles and barriers.

Self-efficacy is a psychological construct that was defined by Bandura (1986) as the perceived capacity to face specific situations. It includes the trust in one's own skills to organize and execute different actions that lead to reaching certain outcomes.

In the scope of education, the scientific literature asserts that self-efficacy is one of the psychological variables that best predict academic performance and success (González-Tejerina and Vieira 2021). In this way, the belief in self-efficacy represents a decisive element that exerts great influence on the perception of students toward their capacities to carry out the necessary tasks and actions that lead to the attainment of a set goal (Marshall et al. 2020; Murimbika and Urban 2020). Therefore, they influence the effort and perseverance of students to achieve their goals, fostering appropriate thought patterns and emotional reactions (Bandura 2000; Rodríguez 2023).

To evaluate their self-efficacy, students weigh the perceptions they have toward their capacities, the degree of difficulty of the task, the effort required, the external support that they may obtain, and the frequency and characteristics of previous successful or unsuccessful experiences (Schunk and DiBenedetto 2021). Students feel more competent if they have had previous experiences in which they felt capable and efficient. This repeated success causes an increase in positive evaluations about their self-efficacy. On the contrary, if students felt incapable and incompetent in previous experiences, with an accumulation of failures, their evaluations of their self-efficacy will be negative, especially if said failures cannot be attributed to external factors (Rossi and Rossi 2022).

Thus, we can assert that having a poor perception of self-efficacy is related to negative outcomes, which, in turn, causes an emotional response of anxiety due to the perceived inability to face different academic situations. However, students with a high perception of self-efficacy obtain better results, are capable of self-regulating their learning, and present greater motivation for learning (León et al. 2019).

It is worth mentioning that adolescence is a delicate and complex stage in which certain personal and social skills are developed and consolidated to guarantee, in some way, a healthy adaptation to the adult period (Hernández-Cano et al. 2022). If adolescents see their level of self-efficacy diminished, their capacity for action will be diminished, and they may foresee a bleak future full of threats.

Therefore, it is safe to state that self-efficacy constitutes a fundamental piece not only to reinforce the success level but also to provide greater personal well-being.

Personal initiative is considered the capacity of an individual to manage her/his life through a set of personal resources with the aim of creating satisfactory projects that improve her/his personal well-being (Herrera and Gutiérrez 2014; Montoro 2021).

According to Lisbona and Frese (2012, p. 23), personal initiative is "the behavior at work characterized by being self-initiated and proactive, as opposed to those conducts based solely on what the individual is asked to do, being persistent in the overcoming of barriers or difficulties that appear along the attainment of the objective".

Along the same lines, Gorostiaga et al. (2018) defined the three dimensions of personal initiative: (1) Proactivity (ability to identify problems and opportunities in advance to benefit oneself and others), (2) Self-initiation (ability to initiate a certain behavior at one's own discretion, without any other person encouraging him/her to do so) and (3) Persistence (willingness to move forward despite barriers and difficulties). These dimensions are also recognized by other authors, such as Lisbona et al. (2018). In this sense, personal initiative implies the implementation of cognitive, emotional, and volitional elements of humans (Aziz and Petrovich 2019).

In the last years, personal initiative has acquired great relevance in the organizational and educational scopes. In the labor scope, numerous studies assert that personal initiative has a positive influence on individuals, improving their employability, and on organizations, optimizing their profitability, among other variables (Brav et al. 2009; Gorostiaga et al. 2018; Mensmann and Frese 2018). In the educational scope, it becomes especially important, as it

is established as a key competence for permanent learning within the European context. This competence allows students to become active agents for the improvement of their personal situation in a hostile and changing world (Ilhamsyah-Putra et al. 2020). However, despite the recent political and educational interest in developing personal initiative, the truth is that it seems that the school system does not sufficiently encourage the development of this competence in adolescent students, which hinders, to a large extent, the action of entrepreneurship (Bernal-Guerrero 2014; Ulacia et al. 2017).

Thus, the personal initiative of students can be a protective tool in the job market since it allows them to find a job or generate it on their own, which makes it essential to educate them in its development.

1.4. Effect of Entrepreneurship Education Programs—The "PEIEO" Program

There is a direct relationship between the concern for promoting entrepreneurship in schools and the need to generate a new economic model capable of creating businesses. Moreover, entrepreneurship is fundamentally linked to the capacity to create self-employment, and it is not limited to the economic scope, but it has progressively expanded to the personal and social scopes (Azqueta 2019), extending its effect to the training of people with initiative and the capacity to cooperate. In the face of this demanding complexity, the aim is not only to promote entrepreneurship in education but also to evaluate its impact, the level of achievement attained, and the degree of reduction reached between theory and practice. However, this is not an easy task. There is a considerable distance between the political propositions of entrepreneurship education and their real impact on non-university education levels (Lackeus and Savetun 2019), although the political discourse also presents weaknesses that must be amended (Dinning 2019). This will determine the set of measures that we can adopt, in the different levels and scopes involved, for the most convenient promotion of the entrepreneurial culture in schools.

Recent research indicates that the development of entrepreneurial competence requires a predisposition to entrepreneurship and a favorable environment (Valdiviezo and Uttermann 2020). This predisposition, known as "entrepreneurial potential", enables the development of skills that shape the entrepreneurial identity of the individual, considering the influence of her/his environment (Bernal-Guerrero 2022). These skills allude to the personal dimension and the attitudes of the individual (Athayde 2012; Bernal-Guerrero and Cárdenas-Gutiérrez 2017). The success of entrepreneurship education lies in the interaction of these personal and contextual factors, shaping the entrepreneurial potential.

In the Spanish context, few studies have been carried out on entrepreneurship education at the lower levels of the education system (Diego and Vega 2015), as is the case of the international situation (Fayolle 2018). Some of the research conducted reveals that secondary school students are not sufficiently trained to survive in the real economic world and perform work activities (Krpalek et al. 2018). On the other hand, there is little research about the influence of entrepreneurship education programs on students' self-efficacy and personal initiative. In previous works, teachers recognized the difficulty of the evaluation processes in this type of program (Delpozzo and Szpunar 2022; Morselli 2019). A recent systematic review (González-Tejerina and Vieira 2021) about entrepreneurship education in primary and secondary education pointed out that the educational practices carried out in Spain remain in an incipient phase and have not been consolidated. Evidence of this can be found in the studies by Bernal-Guerrero (2014), Bernal-Guerrero and Cárdenas-Gutiérrez (2014, 2017) and Cárdenas-Gutiérrez and Montoro-Fernández (2014), which evaluate the impact on the entrepreneurial potential of the entrepreneurship programs EME (a Company in My School), EJE (Young European Enterprise) and ÍCARO. The results indicated that there was no clear effect on the entrepreneurial potential of students, so it was concluded that these programs were insufficient to adequately influence the personal indicators that help build entrepreneurial identity.

Therefore, the program "Entrepreneurial Potential Formation. Generation of an Educational Model of Entrepreneurial Identity" (PEIEO), which consists of generating and

developing an educational model that contributes to configuring the entrepreneurial potential of the personal identity of students belonging to the educational stages of Compulsory Secondary Education.

The aim of this program is to develop the entrepreneurial potential of students, setting up their entrepreneurial identity. Said potential consists of four main indicators: creativity, leadership, personal control, and goal orientation. Creativity implies the ability to conceive novel ideas that allow overcoming challenges. Leadership is related to the aptitude to direct and guide others towards a common objective. Personal control encompasses the capacity to manage and regulate one's own emotions and thoughts. Lastly, goal orientation refers to the level of motivation and dedication of a person to attain a specific objective.

The program established four general objectives and a total of 137 specific objectives distributed among the indicators. A total of 40 activities make up the program (10 per indicator), which are aimed at promoting entrepreneurial potential by developing the personal indicators of entrepreneurship. These activities are carried out through active methodologies (specifically cooperative learning, problem-based learning, project-based learning, and service learning) that guarantee student participation, which contributes to transforming ideas into practice and favors the construction of basic knowledge (knowledge, skills, and attitudes). In this way, the set of activities is intended to produce a deeper and more permanent effect on the entrepreneurial identity, promoting the development of the students' entrepreneurial competence.

It is necessary to analyze the impact of entrepreneurship education experiences on adolescents (secondary education), with the aim of determining whether this type of entrepreneurship education program is having a positive influence on the development of self-efficacy and initiative in students.

From this approach, the general aim of this study was to determine the efficacy of the entrepreneurship education program (PElEO) on the variables of self-efficacy and personal initiative in adolescents. To this end, the following hypotheses were formulated:

H1. *The entrepreneurship education program (PEIEO) will have a positive effect on entrepreneurial initiative and its three dimensions in the students that participate in it.*

H2. *The entrepreneurship education program (PEIEO) will have a positive effect on the self-efficacy of the students who participate in it.*

H3. *Self-efficacy exerts a positive linear influence on the personal initiative of the students.*

H4. *The entrepreneurship education program (PEIEO) will increase or improve the positive influence of self-efficacy on personal initiative in the students who participate in it.*

About Hypothesis 3, it is clarified that although there are studies that show that self-efficacy has a positive influence on personal initiative. Our study aims to verify whether or not this is true in the specific context of entrepreneurship and in adolescents.

2. Materials and Methods

2.1. Study Design

This experimental and descriptive study was designed to evaluate the personal initiative and self-efficacy of the participants as part of the purpose of entrepreneurship education. To analyze the impact of the PEIEO program, a pre-test (before the application of the program) and a post-test (after the intervention program) were designed, with a control group and an experimental group (Cohen et al. 2007). The same number of experimental and control groups was set for all the participating educational centers (Nabi et al. 2017).

2.2. Sample Description

The sample was obtained through stratified probabilistic sampling (Rodríguez 1991). The stratification variables used were autonomous community, type of center (private/public/charter), and sex. The number of centers that participated in this study, considering these variables, is shown in Table 1.

Table 1. Participating centers by autonomous community.

Autonomous Communities	No.
Andalusia	15
Castile and Leon	5
Community of Valencia	5
La Rioja	5
Community of Madrid	4
Basque Country	1

The study's target population consisted of 1,095,074 students, which corresponded to the total number of students registered in secondary education in the academic year 2019–2020 (Spanish Ministry of Education and Vocational Training). A total of 428 adolescents participated in the study, with an age range of 12–18 years. The control group consisted of students who did not undertake the subjects about entrepreneurship and who did not participate in the activities of the PEIEO educational program, with a total of 175 students. The experimental group was composed of 253 students who completed the educational program PEIEO. The demographic factors used as control variables to define the participant profile were sex, age, type of center, and autonomous community (Table 2).

Table 2. Sample data description.

Demographic Factors		Control Group		Experimental Group		Total	
		Nº	(%)	Nº	(%)	Nº	(%)
Sex	Man	96	54.9	146	57.7	242	56.5
	Woman	79	45.1	107	42.3	186	43.5
	Total	175	100.0	253	100.0	428	100.0
Age (years)	12–14	52	29.7	65	25.7	117	27.3
	15–16	111	63.4	170	67.2	281	65.6
	17–18	12	6.9	18	7.1	30	7.0
	Total	175	100.0	253	100.0	428	100.0
Type of center	Public	88	50.3	138	54.5	226	52.8
	Charter	83	47.4	87	34.4	170	39.7
	Private	4	2.3	28	11.1	32	7.5
	Total	175	100.0	253	100.0	428	100.0
Autonomous community	Andalusia	51	29.1	71	28.1	122	28.5
	Community of Madrid	27	15.4	51	20.1	78	18.2
	Castile and Leon	37	21.1	50	19.8	87	20.3
	Com. of Valencia	29	16.5	35	13.8	64	14.9
	La Rioja	4	2.3	46	18.2	50	11.7
	Basque Country	27	15.4	0	0	27	6.3
	Total	175	100.0	253	100.0	428	100.0

The stratified sampling was designed by taking equal numbers of students in the control group and in the experimental group and taking into account the control variables according to the characteristics of the population. Unfortunately, once the implementation of the PEIEO educational program started, some of the schools (private/public) and/or some of the groups abandoned the program or interrupted their participation for various

reasons (lack of time, change of teachers, etc.). This is why, at the end of the project, the data collected did not have exactly the structure initially foreseen in the sample design.

2.3. Measurement of Variables

To measure the two variables, we used scales that have been widely tested and used in the literature. For personal initiative, we used the scale defined by Gorostiaga et al. (2018), consisting of 17 items that evaluate the three dimensions of this variable: proactivity, self-initiation, and persistence.

Personal initiative was designed as a second-order construct composed of three first-order constructs that correspond to its three dimensions.

To measure self-efficacy, we used the scale proposed by Baessler and Schwarzer (1996). All items of the two variables were measured through a 5-point Likert scale.

Tables 3 and 4 gather the results of the modeling of personal initiative and self-efficacy, respectively. To estimate personal initiative, we used the two-step method (Hair et al. 2021). This superior or second-order variable is composed of three first-order constructs or variables: proactivity, self-initiation, and persistence. All three of these variables were modeled as type-A or reflective composite variables. Proactivity consisted of eight items, although four of these items were removed since their cross-loadings were lower than 0.7; moreover, after their removal, there was an increase in construct validity and reliability. As can be observed in Table 3, the remaining items were significant, and the three first-order constructs obtained validity (AVE > 0.5) and reliability (Cronbach's alpha and composite reliability $\varrho c > 0.7$). The estimation of the higher-order construct was modeled as a type-B or formative composite variable. It was observed that the three dimensions were significant (proactivity and self-initiation: 99%; persistence: 95%), and these dimensions did not show collinearity problems since the VIF values were lower than 3 (Hair et al. 2021).

Table 3. Estimation of personal initiative.

First Level (LOCs)			
Proactivity	**Loadings**	**Cross-Loadings**	***p*-Value**
Item 2: I am willing to share my experiences and knowledge with my teachers and classmates	0.254	0.857	0.000 ***
Item 4: I tend to actively participate in the classroom/workshop/laboratory, even if I do not obtain a reward for it	0.246	0.738	0.000 ***
Item 8: I am willing to participate with my classmates in the planning and development of the different activities of the classroom/workshop/laboratory	0.237	0.826	0.000 ***
Item 14: I am willing to learn from the experiences and knowledge of my teachers and classmates	0.263	0.837	0.000 ***
AVE = 0.665; Cronbach's alpha = 0.831; ρc = 0.888			
Self-initiation	**Loadings**	**Cross-Loadings**	***p*-value**
Item 1: I am especially good at implementing the ideas that I have in the classroom/workshop/laboratory	0.177	0.739	0.000 ***
Item 3: I usually have a plan B in case things do not go as I expected in the different modules/projects/subjects	0.195	0.801	0.000 ***
Item 6: I tend to establish my own alternative plans to attain the objectives of my modules/projects/subjects	0.225	0.860	0.000 ***
Item 9: I usually try to implement the ideas I have in the classroom/workshop/laboratory	0.225	0.845	0.000 ***
Item 17: I identify and analyze the problems I may have in the modules/projects/subjects before they occur; thus, when they appear, I already know how to address them	0.177	0.732	0.000 ***

Table 3. *Cont.*

First Level (LOCs)			
AVE = 0.635; Cronbach's alpha = 0.855; ρc = 0.897			
Persistence	**Loadings**	**Cross-Loadings**	***p*-value**
Item 7: When I am performing some task in the classroom/workshop/laboratory, and I make a mistake or encounter some difficulty, I find it hard to resume what I was doing	0.162	0.797	0.000 ***
Item 12: When I encounter changes and/or difficulties in the classroom/workshop/laboratory, my effort level decreases	0.202	0.869	0.000 ***
Item 13: When I no longer understand the contents of some module/project/subject, I despair and quit	0.349	0.953	0.000 ***
Item 15: When I start making mistakes in some module/project/subject, I despair and quit	0.288	0.947	0.000 ***
AVE = 0.799; Cronbach's alpha = 0.919; ρc = 0.940			
Second Level (HOC)	**Loadings**	***p*-value**	**VIF**
Proactivity -> personal initiative	0.239	0.003 ***	2.723
Self-initiation -> personal initiative	0.668	0.000 ***	2.740
Persistence ->-> personal initiative	0.092	0.043 **	1.020

** p value < 0.01; *** p value < 0.001; *pc*: composite reliability; *AVE*: average variance extracted; LOC: lower order construct; HOC: higher order construct; VIF: variance inflation factor.

Table 4. Estimation of Self-Efficacy.

Self-Efficacy			
Proactivity	**Loadings**	**Cross-Loadings**	***p*-Value**
Item 1: I can find a way of getting what I want, even if someone opposes me	0.134	0.753	0.000 ***
Item 2: I can solve difficult problems if I push myself enough	0.113	0.682	0.000 ***
Item 3: I find it easy to persist in what I set myself to do until I reach my goals	0.102	0.784	0.000 ***
Item 4: I believe that I could effectively manage unexpected events	0.109	0.833	0.000 ***
Item 5: Thanks to my abilities and resources, I can overcome unexpected situations	0.127	0.799	0.000 ***
Item 6: When I encounter difficulties, I can stay calm because I have the necessary skills to manage difficult situations	0.066	0.760	0.000 ***
Item 7: In general, I can manage anything that life brings me	0.090	0.681	0.000 ***
Item 8: I can solve most of the problems if I push myself enough	0.087	0.692	0.000 ***
Item 9: If I encounter a difficult situation, I generally work out what I must do	0.115	0.775	0.000 ***
Item 10: When facing a problem, I generally conceive several alternatives to solve it	0.129	0.755	0.000 ***
AVE = 0.567; Cronbach's alpha = 0.915; ρc = 0.929			

Note. *** p < 0.01.

With respect to self-efficacy, this variable was modeled as a type-A or reflective composite variable. All its items were significant at 99% since the cross-loadings were above 0.7 and the *p*-values associated with them were all lower than 0.01. Based on Hair et al. (2022), it was observed that this variable showed validity (AVE > 0.5) and reliability (Cronbach's alpha and composite reliability ϱc > 0.7).

2.4. Data Analysis

Our analysis was divided into four parts. Firstly, each of the variables was modeled as a first-order construct in the case of self-efficacy, and personal initiative was modeled as a second-order construct. This modeling allowed the aggregated values for self-efficacy

and personal initiative to be obtained, as well as for each of the dimensions of the latter: proactivity, self-initiation, and persistence. To obtain the value of the latent variables, the SmartPLS v.4.0.9.6 program was used, as it is optimal for modeling aggregated second-order constructs (Richter et al. 2016; Sarstedt et al. 2019). Secondly, we evaluated the impact of the PEIEO program on the studied variables. To this end, we explored the existence of significant differences between the mean values of each of the variables and each of their dimensions, comparing the control group with the experimental group in the two fundamental time points of the study, i.e., before and after implementing the program. In this way, we determined whether all individuals started from the same initial level and whether similar or different levels were reached in each of the variables after completing the program. Thirdly, we analyzed the possible existence of a linear correlation or dependence between personal initiative and self-efficacy. To achieve this, a between-variable correlation test was conducted. Lastly, an ordinary least squares (OLS) regression was carried out to estimate the effect or influence of self-efficacy on personal initiative before and after the implementation of the educational program, and we analyzed the existence of significant differences between the pre-program and post-program values of this influence. To execute the last three parts of the analysis, SPSS v.26 was used.

3. Results

From the internal composition of the variables (Tables 3 and 4), the values of the latent variables were estimated for the two fundamental time points of this study: before and after the implementation of the educational program. These results are gathered in Table 5.

Table 5. Mean values of the variables.

Constructs	Pre-Test Mean		Post-Test Mean	
	Control (n = 175)	Experimental (n = 253)	Control (n = 175)	Experimental (n = 253)
Proactivity	3.61	3.71	4.36	4.55
Self-initiation	3.43	3.44	4.11	4.34
Persistence	3.26	3.02	2.69	2.73
Personal initiative	3.45	3.46	4.04	4.24
Self-efficacy	3.75	3.68	4.24	4.46

To analyze whether all individuals started from the same initial situation and whether all individuals reached or did not reach the same final level in each of the variables, we analyzed the significance of the differences between the mean values of each of the variables in the control group and in the experimental group, before and after the educational program. The results are shown in Table 6.

Table 6. Analysis of the differences between mean values.

Indicators	Pre-Test			Post-Test		
	Mean Differences Control and Experimental	t-Values	p-Values	Mean Differences Control and Experimental	t-Values	p-Values
Proactivity	−0.10	−1.25	0.106	−0.19	−4.191	0.000 ***
Self-initiation	−0.01	−0.193	0.423	−0.23	−3.625	0.000 ***
Persistence	0.25	2.550	0.006 ***	−0.04	−0.292	0.385
Personal initiative	−0.01	−0.147	0.442	−0.20	−3.482	0.000 ***
Self-efficacy	0.06	1.036	0.150	−0.21	−3.565	0.000 ***

Note. *** $p < 0.001$.

As can be observed, before the implementation of the educational program, the differences between the mean values of the control and experimental groups were not

significant except for persistence. This means that the individuals started from the same mean level in the variables, except in persistence, for which the difference was significant, indicating that the mean value was greater in the control group than in the experimental group. The analysis of the post-test mean values presents significant differences, except, once again, for persistence, showing that the mean values reached in the experimental group were higher than those reached in the control group. In the variable persistence, the difference between mean values was so small that it was considered non-significant. Therefore, we can conclude that the educational program was effective and improved the mean values of personal initiative and its three dimensions, as well as the mean value of self-efficacy, which leads to the acceptance of the first and second hypotheses of this study.

The third part of our work proposes the existence of a linear correlation between the analyzed variables: self-efficacy and personal initiative. To confirm or reject our third hypothesis, a correlation test between the two variables was performed for the whole dataset, control group, and experimental group. Pearson's correlation coefficient was 0.700, with a bilateral significance of 0.000, which leads to the acceptance of our third hypothesis and to conclude that both variables are positively correlated.

After verifying that there is a linear association between personal initiative and self-efficacy, we calculated, for the experimental group, the regression lines estimated by least squares that explain personal initiative as a function of self-efficacy, on the one hand, for the pre-test values and, on the other hand, for the post-test values. These regression lines can be expressed as follows:

$$PI_i = \alpha + \beta * SE_i + u_i$$

The results of both regressions, before and after the implementation of the educational program, are shown in Tables 7 and 8.

Table 7. Estimation of the linear function for personal initiative before the educational program. Dependent variable: personal initiative (n = 253).

	Coefficient	**Standard Deviation**	***t*-Value**	***p*-Value**	
Constant	α_0 = 1.472	0.216	6.827	<0.0001	***
Self-efficacy	β_0 = 0.541	0.058	9.355	<0.0001	***
Mean of the dependent variable		3.463	SD of the dependent variable		0.635
Residual sum of squares		75.035	SD of the regression		0.547
R-squared		0.258	R-squared corrected		0.255
F(1, 251)		87.515	p-value (of F)		4.87×10^{-18}

Note. *** $p < 0.001$.

Table 8. Estimation of the linear function for personal initiative after the educational program. Dependent variable: personal initiative (n = 253).

	Coefficient	**Standard Deviation**	***t*-Value**	***p*-Value**	
Constant	α_1 = 0.937	0.204	4.618	<0.0001	***
Self-efficacy	B_1 = 0.741	0.045	16.38	<0.0001	***
Mean of the dependent variable		4.243	SD of the dependent variable		0.512
Residual sum of squares		31.971	SD of the regression		0.357
R-squared		0.517	R-squared corrected		0.515
F(1, 251)		268.460	p-value (of F)		1.59×10^{-41}

Note. *** $p < 0.001$.

Table 7 shows that, for the pre-test values, the influence of self-efficacy on personal initiative was 0.54 points. This coefficient, β_0, was significant at 99% (t < 0.000), and the model was jointly significant (p-value associated with F < 0.000). The proportion of the variance of personal initiative explained by self-efficacy was 25.8% (R2). Table 8 gathers the estimation of the same model, although for the post-test values. As can be observed,

the influence of self-efficacy on personal initiative was 0.74 points, that is, 0.20 greater than the pre-test influence. This coefficient, β_1, was significant at 99% (t < 0.000), and the model was jointly significant (*p*-value associated with F < 0.000). The proportion of the variance of personal initiative explained by self-efficacy was 51.68% (R2). Therefore, it seems that the educational program improved the influence of self-efficacy on personal initiative. We analyzed the significance of this difference through the Chow test (Dufour 1982). The results are shown in Table 9.

Table 9. Structural change test between the pre-test and post-test values. Dependent variable: personal initiative. Dependent variable: personal initiative.

	Coefficient	Standard Deviation	*t*-Value	*p*-Value	
Constant	0.937	0.204	4.618	<0.0001	***
Self-efficacy	0.741	0.045	16.38	<0.0001	***
splitdum	−0.531	0.318	−1.672	0.0952	n.s.
sd_Self-efficacy	0.200	0.076	2.644	<0.0085	***
Mean of the dependent variable		3.853	SD of the dependent variable		0.695
Residual sum of squares		106.970	SD of the regression		0.462
R-squared		0.562	R-squared corrected		0.559
F(3, 502)		214.752	*p*-value (of F)		1.33×10^{-89}
Chow test of structural change in observation 253 F(2, 502) = 21.2648 with *p*-value 0.0000					

Note. *** $p < 0.001$; n.s.: not significant.

As is shown by the Chow test, the difference in the effect of self-efficacy on personal initiative, considering the pre-test and post-test values, was significant (*p*-value = 0.000). This leads to the acceptance of the fourth hypothesis of this study, that is, the educational program improved or increased the effect of self-efficacy on personal initiative by 0.20 points.

The results obtained for the four hypotheses analyzed can be summarized in Table 10:

Table 10. Summary of the results obtained.

Hypothesis	Acceptance/Rejection
H1. The entrepreneurship education program (PEIEO) will have a positive effect on entrepreneurial initiative and its three dimensions in the students that participate in it.	Partially accepted, verified for the variable Personal Initiative and for two of its dimensions (Proactivity and Self-initiation), but not for Persistence.
H2. The entrepreneurship education program (PEIEO) will have a positive effect on the self-efficacy of the students who participate in it.	Accepted.
H3. Self-efficacy exerts a positive linear influence on the personal initiative of the students.	Accepted.
H4. The entrepreneurship education program (PEIEO) will increase or improve the positive influence of self-efficacy on personal initiative in the students who participate in it.	Accepted.

4. Discussion and Conclusions

After analyzing the data, the results confirm the following three key ideas: (1) the entrepreneurship education program PEIEO significantly improved the mean levels of self-efficacy and personal initiative of the students; (2) the results indicate that there was a positive correlation between self-efficacy and personal initiative, with the former exerting a positive influence on the latter; and (3) the PEIEO program increased the effect of self-efficacy on personal initiative.

These results are consistent, on the one hand, with previous studies claiming that self-efficacy leads to greater personal initiative, being found in the closest antecedents of this (Lisbona et al. 2018; Nsereko et al. 2018; Nsereko et al. 2021) and, on the other hand,

with the theories of entrepreneurial intention, which state that the intention to undertake a new project is subject, among other aspects, to perceived behavioral control (PBC) (Liñán and Chen 2009; Liñán and Fayolle 2015), that is, the degree of conviction of the individual that her/his entrepreneurial behavior is under her/his control. In this way, our results can be framed within the model of the theory of planned behavior (TPB, Ajzen 1991), where self-efficacy and personal initiative are antecedents of entrepreneurial intention and where in turn, self-efficacy is an antecedent of personal initiative.

The problem is that numerous studies have reported that students who doubt their skills may perceive tasks to be more difficult than they really are (García et al. 2016; Gutiérrez and Landeros 2018). This belief generates great tension and a narrow view of the resolution of any type of problem in them, which, in turn, leads them to a depressive state that does not contribute to developing their entrepreneurial potential. In this sense, a low level of self-efficacy not only causes a decrease in academic performance and, therefore, in entrepreneurial behavior, but it can also result in maladaptive behaviors that prevent them from finding or generating decent jobs (Olivari and Urra 2007). Thus, to guarantee success in entrepreneurial action, entrepreneurial education should promote scenarios where adolescents can exercise and test their skills and abilities, fostering their perception of the control they may have over new and unknown situations, thereby enhancing the expectations of self-efficacy. This would contribute to considerably increasing the probability of carrying out a difficult action and increasing the effort and persistence to do so (Gorostiaga et al. 2018).

Given the importance of the expectations of self-efficacy and how these influence motivation, performance, and initiative (Solesvik 2017), it is convenient that all entrepreneurship educational processes strengthen the development of competencies and stimulate skills that allow students to believe in their own abilities. Therefore, the educational effort lies in the increase of positive self-evaluations and the improvement of self-esteem and self-concept, which would, in turn, favor the entrepreneurial action.

In conclusion, after reviewing the scientific literature, it was observed that few studies have explored the influence of entrepreneurship education programs on the self-efficacy and personal initiative of students, even though their relationship represents a valuable mechanism for undertaking action. This is due to the fact that entrepreneurship education, especially in the Spanish context, is in an incipient phase and has not been consolidated (Diego and Vega 2015; Delpozzo and Szpunar 2022; González-Tejerina and Vieira 2021; Morselli 2019). Thus, from the educational system, we must grant greater relevance to self-efficacy and personal initiative. These two variables not only improve the employability of job applicants but also promote the development of key indicators to undertake new projects and generate self-employment, thus allowing them to cover one of the basic needs of human beings, including adolescents.

This study contributes to the research on self-efficacy and personal initiative in adolescents. Moreover, it explores a scope that has not been addressed to date. Specifically, it analyzed how entrepreneurship education, through an educational program, improves the positive influence of self-efficacy on personal initiative in students. All this leads us to believe that entrepreneurial education programs are an effective educational tool to improve personal skills such as self-efficacy and personal initiative. This means that, ultimately, students will be able to carry out projects of any kind, both in the workplace and in the personal sphere. Entrepreneurial education, therefore, trains qualified people who will be able to successfully face any adverse circumstance.

However, our work has some limitations that must be considered in future research. It would be advisable to include a larger number of centers with larger sample sizes, as well as other educational stages, such as Baccalaureate and vocational training. Although the PElEO program has been applied in these educational stages, the results have not been analyzed yet. In the future, if a larger sample were available, it would be advisable to analyze whether there are significant differences between centers according to their ownership (public/private, etc.). Although no significant differences were found according

to gender in this study, this analysis could be further explored with a larger sample size. It would also be useful to use a qualitative methodology that would help to complete the information collected and shed light on the quantitative data, with the aim of gaining in-depth knowledge of the impact that this educational program may have had on the development of students' self-efficacy and personal initiative. Future research lines must reinforce the analysis of self-efficacy and personal initiative, the dependence between them, and the relationship with other variables that influence or may influence the attitude toward entrepreneurship, such as creativity, goal orientation, personal control, and leadership. They could also extrapolate this study to international contexts.

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