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It Is Not Enough: The Moderation Effect of Entrepreneurship Education in Mexican University Students

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Abstract: Understanding the impact of entrepreneurship education on the entrepreneurial cognition of university students is relevant to finding ways to foster entrepreneurship that boost the economy in developing countries. The objective of this study is to determine the influence of personal attitude, perceived behavioral control, and subjective norms on entrepreneurial intention, and to discover if there exists a moderation effect of entrepreneurship education on the abovementioned aspects. We collected 343 questionnaires of students of the Center for Administrative and Economic Sciences of a Mexican university. We used structural equations through the method of partial minimum squares, and, to test the hypothesis, we used the Smart-PLS 3.0 software. The results indicate that entrepreneurship education does not have a significant moderation effect on the relationship between personal attitude on entrepreneurial intention and perceived behavioral control on entrepreneurial intention. However, there exists a significant and positive influence of personal attitude on entrepreneurial intention and perceived behavioral control on entrepreneurial intention. We conclude that current entrepreneurship education has the opportunity to create impactful outcomes because the theory is easy, but entrepreneurship in reality is hard and requires more effort. We recommend including a wider view with external resources like lectures of experts from the entrepreneurial ecosystem and support from government and potential investors, among other approaches.

Keywords: entrepreneurship education; university students; entrepreneurial intention; moderation effect; structural equations

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1. Introduction

In recent years, Latin America has been experiencing a slowdown and other macroeconomic problems. The main economies of Latin America have presented low growth, and this is reflected in the growth of the gross domestic product per capita. In 2022, the per capita growth of GDP in Mexico was 3.2%, while countries such as the Maldives and Monaco presented an increase between 13.4% and 11.8% (World Bank 2022). The environmental conditions that impact potential entrepreneurs are negative in developing countries compared with developed ones because of the inefficiency of legislation, the lack of support institutions, and the negative culture surrounding entrepreneurs that are part of informal activities (Guerrero et al. 2021). Developing strategies to foster the entrepreneurial mindset of people in developing countries like Latin American ones is urgent, and entrepreneurship education can be a tool to foster entrepreneurship and, as

a consequence, solve macroeconomic problems. Universities have a key role in teaching entrepreneurship education.

The research on the impact of entrepreneurship education on intentions has ambivalent results, because, in some cases, the direct impact is positive (Zemlyak et al. 2022; Astiana et al. 2022; Ntshangase and Ezeuduji 2023; Boubker et al. 2021), but, in others, the impact does not exist (Mónico et al. 2021; Truong et al. 2022; Dobson and Muhammad 2022). This indicates that entrepreneurship education, in some situations, is not changing the entrepreneurship intention of university students; from this perspective, a question arises: what other effects could entrepreneurship education have on entrepreneurship intention? Some studies indicate that the relationship between entrepreneurship education and entrepreneurship intention is mediated by other variables like entrepreneurial cognition, inspiration, knowledge and skills, and entrepreneurial motivations (Nguyen and Nguyen 2023; Hou et al. 2022; Thomas 2023; Hassan et al. 2021).

Entrepreneurship education is commonly used by government and non-profit organizations to support entrepreneurial activity and foster entrepreneurial intention (Almeida and Garrod 2024; Almeida et al. 2019). Studying entrepreneurship education is relevant due to the impact that entrepreneurship has on economic indicators, such as economic growth (GDP-related indicators), employment measures, and the national level of competitiveness. In addition, some studies indicate that entrepreneurship can impact social and environmental welfare (Neumann 2021). Although the relevance of entrepreneurship is evident and studies exist about the direct effects and mediated variables of entrepreneurship education in relation to entrepreneurial intention, the moderation effect that entrepreneurship has on education remains a topic to be discovered.

Present entrepreneurship education as the main solution to foster entrepreneurship is limited because the promotion of entrepreneurship is more complex and involves other elements, like nurturing the students' systems thinking to be more entrepreneurial and have a good entrepreneurial climate (Zemlyak et al. 2022; Kinnula et al. 2024; Shao et al. 2024). Entrepreneurship education is also a context that can change relationships, for example, attitude and entrepreneurial intention, and this moderation effect is relevant because it gives a deeper understanding of the reach of entrepreneurship education.

Planned behavior theory (TPB) was used in this study to investigate the moderation effect of entrepreneurship education. There is a gap in the study of entrepreneurship education as a moderation effect to obtain a better understanding of the entrepreneurial intention model; therefore, the research question is as follows: does there exist a change in the entrepreneurial intention model with the presence of entrepreneurship education? The theoretical contribution of this study is challenging this well-known existing theory by including a situation (entrepreneurship education) that can alter the relationships in the model.

Universities are an important agent and influence their students through entrepreneurship education. Specifically, in business schools, there is a tendency for students to feel attracted to the world of business and entrepreneurship. This study was carried out on students who are pursuing careers in the economics and administrative area of a higher education institution in Mexico where entrepreneurship courses are given to students through compulsory subjects. The compulsory entrepreneurship course has the main objective of fostering the entrepreneurial intention of students. The objective of this study is to determine the influence of personal attitude, perceived behavioral control, and subjective norms on entrepreneurial intention, as well as to determine the moderation effect of entrepreneurship education on the relationships between these variables. The structural equations method was used through the partial least squares technique to test the hypotheses and obtain the results and conclusions.

2. Literature Review and Hypothesis

Forbes (1999) carried out an analysis of the cognitive approaches by which the creation of a company is studied, and divided that study into five stages: before the foundation, the

foundation, after the foundation (exploration), during the foundation (interpretation), and after the foundation (action). Before the foundation, the process of creating new businesses is studied with variables such as culture, attitude, entrepreneurial intention, entrepreneurial experiences, self-efficacy, desirability, and feasibility.

2.1. Theory of Planned Behavior

One of the most studied variables in the pre-founding stage of a company is the entrepreneurial intention, which is commonly studied through the theory of planned behavior., The central factor is the individual's intention to perform a behavior. Intentions are assumed to capture the motivational factors that influence behavior; this indicates how much effort is involved in planning to perform the behavior. The stronger the intention to engage in a behavior, the more likely we are to perform that behavior. Behavioral intention is the antecedent of actual behavior only if the behavior in question is controlled by the will; that is, if the person can decide at will to perform or not perform the behavior (Ajzen 1991).

This theory indicates that the antecedent of a behavior is the intention to carry out the behavior, and the intention is influenced by personal attitude, subjective norms, and perceived behavioral control (Ajzen 1991). There exists evidence that personal attitude, perceived behavioral control, and subjective norms are the variables that influence entrepreneurial intention (Abdullah et al. 2023; Rosique-Blasco et al. 2018).

The theory of planned behavior (TPB) has been studied for many years to understand human behaviors; until 2020, this theory has been used in 4200 articles on the Web of Science in a wide range of fields like public health, business, psychology applied, environmental studies, and educational research (Bosnjak et al. 2020). Although the variables of this theory have been studied a lot, this theory is still in progress, and scholars continue with the exploration of these variables to "... propose additional factors (to the theory) to account for the complexity of human behavior" (Bosnjak et al. 2020, p. 355). The purpose of this study is to take a strong theory (TPB) with empirical evidence to predict the entrepreneurial intention of university students to know what the conditions that change the relationships between the variables of this model are. In this study, entrepreneurship education is the condition that could moderate and challenge this theory, expanding the understanding of the theory of planned behavior.

2.2. Personal Attitude and Entrepreneurial Intention

Attitude refers to the subjective characteristics of a process of individual awareness that could trigger or not trigger an individual activity within a society. Attitude is an affective reaction to an object or behavior. Therefore, for this study, personal attitude is the positive affective reaction that an individual has towards the creation of a new company (Thomas and Znaniecki 1918; Fishbein and Ajzen 1975; Liñán et al. 2013).

Evidence indicates that personal attitude positively influences entrepreneurial intention, which means students have a positive affective reaction to entrepreneurship and intend to create a business in the future. The influence of attitude on entrepreneurial intention is strong in higher education contexts; some studies show a coefficient of 0.701 (Lopes and Lima 2019), 0.692 (Hossain et al. 2023), 0.647 (Nowiński et al. 2020), and 0.440 (Idrovo Poveda et al. 2020). The first hypothesis of this study is as follows:

Hypothesis 1 (H1). *Personal attitude influences positively and significantly entrepreneurial intention.*

2.3. Subjective Norms and Entrepreneurial Intention

Behind the subjective norms are the normative beliefs that reflect the approval or disapproval of individuals or close groups regarding the performance of a particular activity. Normative beliefs are multiplied by the motivation of the individual to comply with this normative belief, resulting in subjective norms that are generally obtained by asking to what extent close people would approve of or not specific behavior (Ajzen 1991).

Studies have shown heterogeneous results. Some of them indicate that subjective norms have a positive and significant influence on entrepreneurial intention (Kolvereid and Isaksen 2006; van Gelderen et al. 2008; Wu and Wu 2008; Tahir and Kutpudeen 2023). On other hand, some studies state that a significant relationship does not exist between subjective norms and entrepreneurial intention (Rodriguez-Gutierrez et al. 2020; Ng et al. 2021; Otache et al. 2021). The second hypothesis of this study is as follows:

Hypothesis 2 (H2). *Subjective norms influence positively and significantly entrepreneurial intention.*

2.4. Perceived Behavioral Control and Entrepreneurial Intention

The term perceived behavioral control is generally related to self-efficacy; Ajzen and Madden (1986) refer to how easy or difficult it will be for a person to perform a certain behavior, while, for Bandura (1995), self-efficacy is the beliefs that people have about their ability to influence certain events that affect their lives. Although there is a dilemma between these two ways of seeing how capable a person perceives themselves to perform a certain activity, this study will take the concept of perceived behavioral control, as it comes from the theory of reasoned action approach, specifically control beliefs, regardless of whether these beliefs are accurate, objective, or irrational (Ajzen and Fishbein 2005).

Beliefs are also a fundamental part of perceived behavioral control. Because behavior is an externalization of beliefs that are held about a behavior, perceived behavioral control is constituted by control beliefs which are the basis of the perceptions you have about how capable you perceive yourself to perform a behavior (Ajzen and Fishbein 2005). After personal attitude, perceived behavioral control is the second variable that contributes the most to entrepreneurial intention in a positive and significant way (Niţu-Antonie and Feder 2015).

Most of the studies indicate that perceived behavioral control influences significantly and positively entrepreneurial intention. Canillo et al. (2020) found that in university students of the Philippines, the perceived behavioral control influences positively and significantly entrepreneurial intention; the same result was found for studies carried out in Croatia, Oman, and Spain (Turuk et al. 2020; Echchabi et al. 2020; Laguía et al. 2019). The third hypothesis of this study is as follows:

Hypothesis 3 (H3). *Perceived behavioral control influences in a significant and positive way on entrepreneurial intention.*

2.5. The Moderation Effect of Entrepreneurship Education

Entrepreneurial cognition is focused on answering the following question: How do entrepreneurs think? (Mitchell et al. 2007). The pre-founding entrepreneurial cognition is relevant because it is the moment when entrepreneurship education could be a condition that models the entrepreneurial cognition of the interaction of attitude, control perceived behavior, and subjective norms with entrepreneurial intention. Studying the moderation effect of entrepreneurship education will provide a better understanding of how this condition models the relationship of these important variables in the pre-founding entrepreneurial cognition of students. Finally, Martin et al. (2013) recommend carried out studies that indicate the moderator effect of entrepreneurship education because they found heterogeneity in the correlations of their study.

The fourth hypothesis is divided into three parts:

Hypothesis 4a (H4a). *Entrepreneurship education has a moderating effect on the relationship of personal attitude and entrepreneurial intention.*

Hypothesis 4b (H4b). *Entrepreneurship education has a moderating effect on the relationship between subjective norms and entrepreneurial intention.*

Hypothesis 4c (H4c). *Entrepreneurship education has a moderating effect on perceived behavioral control and entrepreneurial intention.*

3. Method

The choice of the data analysis technique was made based on the research objectives that seek to find if there is a relationship or interaction between variables. The technique that best suits the research needs are structural equations, which is a statistical methodology carried out through a confirmatory approach such as hypothesis testing to analyze the theoretical structure related to that phenomenon (Byrne 2016). The partial least squares (PLS) approach was employed as a component-based structural equation modeling technique. This method is commonly used in social sciences and is a multiple regression approach that estimates principal components' parameters (Hsu et al. 2006).

The procedure to perform the analysis of structural equations using the partial least squares method is as follows (Hair et al. 2017):

1. Specify the structure of the model;
2. Specify the measurement model;
3. Data collection and verification;
4. Evaluation of the reflective or formative measurement model;
5. Evaluation of the structural model.

The structure model was explained previously in the hypothesis section, and the measurement model, data collection, verification, and evaluation of the measurement model are explained in this method section. The evaluation of the structural model is in the results section.

3.1. Context and Selection of the Sample

The study was performed in a Mexican public university founded in 1973 and funded mainly by federal government. The mission of the university is to promote the sustainable, fair, and balanced development of our society: by providing comprehensive training, in the various human dimensions, to people with a global perspective who contribute in an effective, committed, and ethical manner to the solution of social needs and problems; by generating, disseminating, and applying knowledge and innovation that improves the standard of living and well-being of the population; and by promoting art, culture, and sports that enrich people's lives. The university currently offers 65 undergraduate programs grouped into ten different centers: one of them is the Center for Economic and Administrative Sciences, which offers nine (9) undergraduate programs: (1) public accountant, (2) business administration, (3) administration of production and services, (4) financial administration, (5) international trade, (6) economics, (7) tourism management, (8) marketing, and (9) industrial relations.

The Center for Economic and Administrative Sciences, through the administration department, offers a course about entrepreneurship to students from different careers such as the following: industrial relations, business administration, finance, and international trade, among others. This subject on entrepreneurship development is part of the mandatory subjects of some careers. This subject aims to awaken the entrepreneurial spirit in participants and provide them with the tools to develop a business plan for a new micro-enterprise. At the end of the course, students participate in an event called an entrepreneurial showcase, where they display the product and company they developed in class during the semester at a stand, and the three best projects are awarded prizes.

The university was chosen for the next reasons: (1) It represents the form of work of a typical public university in Mexico that includes entrepreneurship courses that are mandatory for their students. (2) It is the most prominent university in the city, having an average of 10,000 students per year. The impact and the manner of work in managing entrepreneurship courses represent a typical university in Mexico, which makes it relevant to study EE in this context.

The target population was determined based on the number of undergraduate students enrolled in the careers of the Center for Economic and Administrative Sciences of a Mexican University in Aguascalientes, Mexico: 2780, which is the total number of students. They study the following: business administration, public accounting, economics, financial

administration, marketing, international trade, industrial relations, tourism management, and products and services administration.

The questionnaire includes two parts: (1) The informed consent includes the information about researchers, the purpose of the study, the type of research, the selection of the sample, the procedure to answer the questionnaire, contact information, and statement consent. (2) The questions (statements) were divided by each variable: personal attitude has 4 items, subjective norms 3 items, control of perceived behavior 6 items, and entrepreneurial intention 6 items; these variables were measured with a 7-point Likert scale. For entrepreneurship education, there are 1 item and 4 items for sociodemographic indicators.

The sample size was calculated based on the population through the finite population formula with 95% confidence and 5% error, giving 343 questionnaires. Students of careers taking some entrepreneurship subjects were found to have a greater probability to be taking this type of course. Students responded to the questionnaires during their classes; the interviewer attended the classes and asked permission from the professor to give the students the questionnaire. The interviewer explained the objective of the study and asked to students if they agreed to participate by responding to the questionnaire, the interviewer gave the questionnaires to the students, and, finally, the students gave back the questionnaire. Before the students answered the questionnaire, they read the informed consent form and indicate if they agreed to respond to it.

A total of 356 questionnaires were collected, but, during the questionnaire revisions, 13 of them were eliminated because they had data quality issues. Three hundred and forty-three questionnaires were analyzed.

The business administration, financial administration, international trade, marketing, and industrial relations students who completed the course on entrepreneurial development and are between the third and ninth semester of their career were interviewed. Students from the same careers were interviewed but have not taken that compulsory subject.

3.2. Characteristics of the Sample

The sample obtained has the following characteristics: 62.7% of the students are female and 37.3% are male, the average age was 21.8 years old, 88.3% of the students are between 6th and 9th semesters of their career (the careers last 9 or 8 semesters), 43.4% of the students have a direct relative (father, mother, or siblings) that is a business owner, 40.8% have entrepreneurship education, and 59.2% do not have entrepreneurship education. In Table 1, the students with entrepreneurship education show a higher indicator of entrepreneurial intention, attitude, and perceived behavioral control.

Table 1. Average results per variable according to entrepreneurship education (scale 1 to 7).

Entrepreneurship Education	Entrepreneurial Intention	Attitude	Perceived Behavioral Control	Subjective Norms
WITH Entrepreneurship Education	5.16	5.31	4.76	5.96
WITHOUT Entrepreneurship Education	4.96	5.20	4.48	5.99

The scale to measure the variables of personal attitude, subjective norms, perceived behavioral control, and entrepreneurial intention was developed by Liñán and Chen (2009). Gerba (2012) indicates that entrepreneurial education is being aware of the increase in knowledge acquired about entrepreneurship. One of the ways to increase the knowledge acquired about entrepreneurship and being aware of it is through having taken courses that give knowledge about the creation of a new company. Entrepreneurship education was measured by whether the students participated in an entrepreneurship class or not.

3.3. Measurement Model Evaluation

To evaluate the measurement model, we used the software Smart-PLS. The first step is to carry out the analysis of reliability and validity of the sample. Cronbach's alpha and composite reliability analysis were conducted to determine the reliability indicators. The Cronbach's alpha values for the variables show a coefficient greater than 0.7. According to Nunnally and Bernstein (1994), the items of each variable have a good inter-correlation between them, and the data have satisfactory reliability; the results of the composite reliability analysis also indicate satisfactory reliability because the indicators are also higher than 0.7 (see Table 2).

Table 2. Reliability analysis.

Variable	Cronbach's Alpha	Compound Reliability
Personal attitude	0.777	0.871
Perceived behavioral control	0.807	0.874
Entrepreneurial intention	0.839	0.892
Subjective norms	0.861	0.915

The second step in evaluating the measurement model is to analyze the convergent validity analysis; this analysis indicates that each item measures the same construct that is used to measure that variable (Hair et al. 2017). The convergent validity includes an external factorial loads analysis (outer loadings) and average extracted variance analysis. According to Table 3, indicators of the external factorial loads indicate there exists a convergent validity because the factorial loads are greater than 0.7, according to what Bagozzi and Yi (1988) indicate.

Table 3. Analysis of external factorial loads.

Item	Personal Attitude	Perceived Behavioral Control	Entrepreneurial Intention	Subjective Norms
PA1	0.734			
PA3	0.903			
PA4	0.823			
PBC1		0.844		
PBC2		0.887		
PBC3		0.875		
EI1			0.800	
EI2			0.800	
EI4			0.804	
EI5			0.875	
SN1				0.917
SN2				0.855
SN3				0.877

In Table 4, we can see that the average extracted variance is greater than 0.5, and the necessary parameter for convergent validity, according to Fornell and Larcker (1981), that indicates large variance is explained by its indicators (Hair et al. 2017).

Table 4. Analysis of the average extracted variance.

Variable	Extracted Variance Index
Personal attitude	0.677
Perceived behavioral control	0.755
Entrepreneurial intention	0.673
Subjective norms	0.780

To determine discriminant validity, it is necessary to carry out two analyses: cross-loading of indicators and the Fornell-Larcker criterion. According to Table 5, the results of cross-loadings indicate that variables are different between them, which means the indicators associated with the variable are higher than indicators associated with the other variables (Hair et al. 2017).

Table 5. Cross loadings.

Item	Personal Attitude	Perceived Behavioral Control	Entrepreneurial Intention	Subjective Norms
PA1	0.734	0.257	0.494	0.261
PA3	0.903	0.459	0.675	0.317
PA4	0.823	0.511	0.570	0.219
PBC1	0.405	0.844	0.539	0.181
PBC2	0.463	0.887	0.537	0.220
PBC3	0.448	0.875	0.535	0.263
EI1	0.466	0.523	0.800	0.219
EI2	0.610	0.483	0.800	0.255
EI4	0.573	0.478	0.804	0.226
EI5	0.664	0.545	0.875	0.166
SN1	0.304	0.230	0.249	0.917
SN2	0.294	0.192	0.213	0.855
SN3	0.262	0.251	0.230	0.877

The Fornell and Larcker (1981) analysis is in Table 6. The values of the diagonal line are higher than those below that row; this indicates that each variable is different from another and has discriminant validity.

Table 6. Fornell and Larcker criterion.

Variables	Personal Attitude	Perceived Behavioral Control	Entrepreneurial Intention	Subjective Norms
Personal attitude	0.823			
Perceived behavioral control	0.505	0.869		
Entrepreneurial intention	0.711	0.618	0.820	
Subjective norms	0.325	0.255	0.262	0.883

Finally, we can say that the data of the sample obtained from university students of the Center for Economic and Administrative Sciences of the Mexican university are reliable and valid.

3.4. Invariance Measure of Composite Models

Before conducting the multi-group analysis, it is essential to confirm that the estimated parameters of the model do not arise from a distinct meaning compared to the latent variables of the measurement model in any of the groups (Matthews 2017). This verification is performed using the MICOM test, which stands for Measurement Invariance of Composite Models.

The procedure for assessing the invariance of composite models, known as MICOM, initiates with an examination of the composite's invariance through a permutation test. As presented in Table 7, the original correlation surpasses the 5% of quantile correlations. This initial outcome indicates that the permutation test has been deemed acceptable based on Matthews (2017). Subsequently, two additional parts must be examined to determine the presence of complete or partial invariance.

Table 7. Permutation test part 1.

Variable	Original Correlation	Correlation of Permutation Means	5.0%	*p*-Values Permutation
Personal attitude	1.000	0.998	0.994	0.727
Perceived behavioral control	0.999	0.999	0.998	0.264
Entrepreneurial intention	0.999	0.999	0.998	0.434
Subjective norms	0.996	0.995	0.983	0.388

When examining the second and third components of MICOM, it is important to assess whether the original mean and variance fall within the 95% confidence interval in a one-tailed test. For instance, as shown in Table 8, the permutation test part 2 evaluates the original mean of all variables, but "personal attitude" and "entrepreneurial intention" do not lie within the confidence interval. In Table 9, permutation test part 3, "personal attitude", "subjective norms", and "entrepreneurial intention" variables are found within the 95% confidence interval, except for "perceived behavioral control", indicating that two variables did not pass the test part 2 ("personal attitude" and "entrepreneurial intention"), and one of them did not pass the test part 3 ("perceived behavioral control"). According to Matthews's (2017) findings, if at least one of the two tests is passed by all variables, partial invariance can be inferred, thus enabling the continuation of the multi-group analysis (moderation analysis).

Table 8. Permutation test part 2.

Variable	Mean—Original Differences (Without Entrepreneurship Education–With Entrepreneurship Education)	Mean—Difference of Permutation Means (Without Entrepreneurship Education–With Entrepreneurship Education)	5.0%	95.0%	*p*-Values Permutation
Personal attitude	−0.212	0.001	−0.178	0.178	0.020
Perceived behavioral control	−0.118	−0.003	−0.175	0.171	0.145
Entrepreneurial intention	−0.263	−0.003	−0.190	0.179	0.009
Subjective norms	0.033	0.002	−0.182	0.184	0.391

Table 9. Permutation test part 3.

Variable	Variance—Original Difference (Without Entrepreneurship Education–With Entrepreneurship Education)	Variance—Difference of Permutation Means (Without Entrepreneurship Education–With Entrepreneurship Education)	5.0%	95.0%	*p*-Values Permutation
Personal attitude	0.005	0.006	−0.381	0.370	0.511
Perceived behavioral control	0.301	0.012	−0.258	0.278	0.036
Entrepreneurial intention	0.104	0.004	−0.294	0.319	0.283
Subjective norms	−0.048	0.009	−0.392	0.419	0.413

4. Results

After verifying that the construct measures have reliability and validity and that a partial invariance exists, the assessment of the structural model is presented. The software Smart-PLS was used to carry out the analysis. The results of the structural model show the standardized coefficient and the *t*-value for each relationship between variables (see Table 10). The results for H1 indicate that personal attitude has a significant effect on entrepreneurial intention, with a *p*-value less than 0.001 and a positive standardized coefficient of 0.535. In the case of H2, subjective norms do not significantly influence entrepreneurial intention with a *p*-value greater than 0.05. The test for hypothesis 3 (H3) indicates that the perceived behavioral control significantly influences the entrepreneurial intention with a *p*-value less than 0.001 and a standardized coefficient of 0.348.

Table 10. Result of the structural model.

Hypothesis	Standardized Coefficient	*t*-Value
H1. Personal attitude (PA) influences positive and significant entrepreneurial intention (EI).	0.535 ***	8.448
H2. Subjective norms (SN) influence positive and significant entrepreneurial intention (EI).	−0.001	0.308
H3. Perceived behavioral control (PBC) influences positive and significant entrepreneurial intention (EI).	0.348 ***	6.550

*** $p \leq 0.001$.

In addition to obtaining the coefficients and the significant levels, we calculated the f^2; this indicator determines the relevance of the independent variables (PA, SN, and PBC) over the dependent one EI (Hair et al. 2017). In Table 11, f^2 indicators, the following results can be appreciated: The personal attitude regarding the entrepreneurial intention has an $f^2 = 0.498$; the subjective norms on the entrepreneurial intention have an $f^2 = 0.000$, and the perceived behavioral control on the entrepreneurial intention has an $f^2 = 0.221$; as indicated by Cohen (1988). all the f^2 greater than 0.35 are large effects. Personal attitude has a great relevance to entrepreneurial intention, while perceived behavioral control has a medium effect on entrepreneurial intention; subjective norms have no effect on entrepreneurial intention.

Table 11. Indicators of f^2.

Relationship	f^2
Personal attitude → Entrepreneurial intention	0.498
Subjective norms → Entrepreneurial intention	0.000
Perceived behavioral control → Entrepreneurial intention	0.221

In the analysis of the R^2 indicator, entrepreneurial intention is explained by 59.2% ($R^2 = 0.592$) based on personal attitude, subjective norms, and perceived behavioral control.

A hypothesis test was conducted to examine the moderating effect of entrepreneurship education on the relationships between independent variables (PA, SN, and PBC) and the dependent variable (EI). Its purpose was to determine whether entrepreneurship education would influence the associations. The results, as presented in Table 12, indicated that the test for hypotheses H4a, H4b, and H4c showed no significant moderating effect in any of the relationships. This conclusion was drawn based on the *p*-values being less than 0.05. The path diffs were also analyzed, representing the disparities between coefficients obtained in those with entrepreneurship education compared to the group without such education. Although these differences were not statistically significant, it is worth noting that the most notable variations between these two groups were observed in the relationship between perceived behavioral control and entrepreneurial intention, with a coefficient difference of 0.096. The relationship between personal attitude and entrepreneurial intention was 0.083, while the difference between subjective norms and entrepreneurial intention was 0.014.

Table 12. Result of the moderating hypothesis test.

Hypothesis	Path-Diff Coefficient	*t*-Value	*p*-Value
H4a. Entrepreneurship education (EE) has a moderating effect on personal attitude (AP) and entrepreneurial intention (IE).	0.083	0.965	0.335
H4b. Entrepreneurship education (EE) has a moderating effect between subjective norms (NS) and entrepreneurial intention (IE).	0.014	0.199	0.842
H4c. Entrepreneurship education (EE) has a moderating effect between perceived behavioral control (CPC) and entrepreneurial intention (IE).	0.096	1.119	0.264

In Table 13, results by group of each relationship between variables, and the coefficients of each relationship by group (with or without entrepreneurship education) were obtained. The influence of personal attitude on entrepreneurial intention is significant

and positive both in the group with entrepreneurship education and the group without entrepreneurship education. However, it is higher in the group with entrepreneurship education with a coefficient of 0.634, while, in the group without entrepreneurship education, a coefficient of 0.551 is obtained. Subjective norms do not significantly influence entrepreneurial intention in the group with entrepreneurship education and that without entrepreneurship education. Perceived behavioral control positively and significantly influences entrepreneurial intention in both groups, although its influence is less in the group with entrepreneurship education (0.257) than in the group without entrepreneurship education (0.353).

Table 13. Results are based on the group of each relationship between variables.

Variables	Group	Standardized Coefficient	*t*-Value	*p*-Value
Personal attitude → Entrepreneurial intention	With entrepreneurship education	0.634	9.495	0.000
	Without entrepreneurship education	0.551	10.073	0.000
Subjective norms → Entrepreneurial intention	With entrepreneurship education	0.011	0.174	0.862
	Without entrepreneurship education	−0.003	0.084	0.933
Perceived behavioral control → Entrepreneurial intention	With entrepreneurship education	0.257	4.064	0.000
	Without entrepreneurship education	0.353	6.207	0.000

The results of the direct effects, moderating hypothesis tests, and R^2 can be better appreciated in Figure 1, which shows the results graphically.

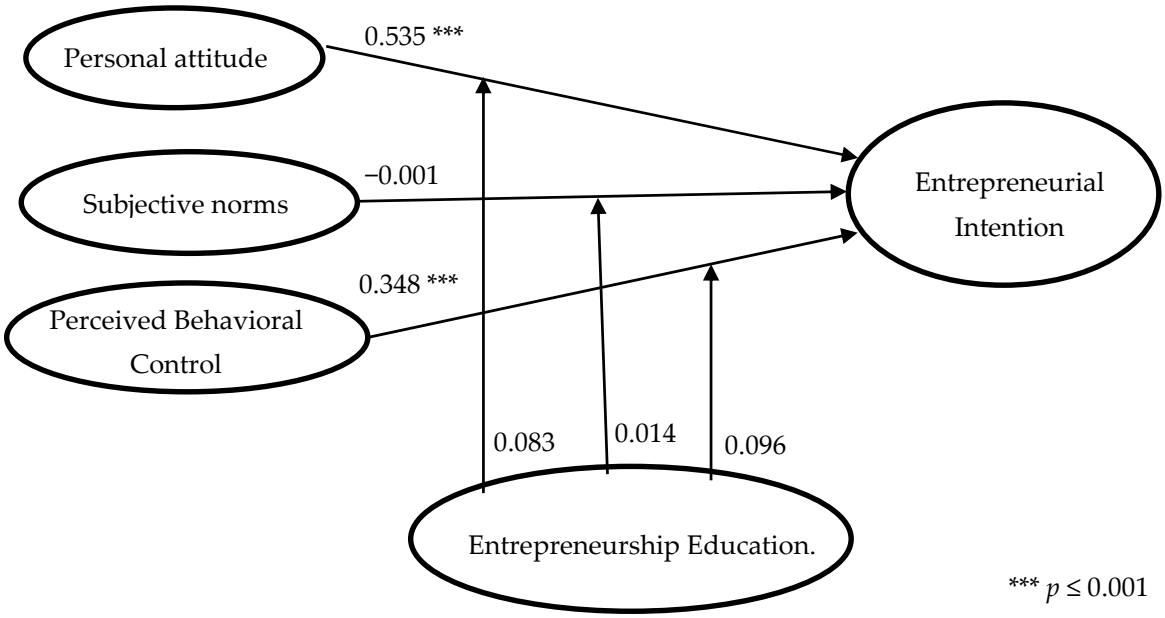

Figure 1. Model with results.

Finally, the findings support H1 and H3 with a significant relationship between personal attitude and entrepreneurial intention and perceived behavioral control and entrepreneurial intention; although results did not support H2, H4a, H4b, or H4c were supported with the results.

5. Discussion

The theory of planned behavior was tested but did not show consistency with the theory itself because the relationship between subjective norms and entrepreneurial intention is perhaps not significant; personal attitude and perceived behavioral control show a significant influence on entrepreneurial intention. The next section discusses the findings, presenting them by hypothesis and comparing them with existing theoretical knowledge.

H1. Personal attitude significantly and positively influences entrepreneurial intention in 53.5%. That hypothesis was supported by the findings. This result is similar to other studies in higher education institutions like the studies of Hossain et al. (2023) and Nowiński et al. (2020). This shows university students' awareness about entrepreneurship has a positive affective reaction that influences the entrepreneurial intention. Otherwise, perceived control behavior influences significantly and positively entrepreneurial intention in 34.8%, and the belief of how people perceive themselves about their abilities to be an entrepreneur influences entrepreneurial intention; this result is similar to studies carried out in Spain and the Philippines (Laguía et al. 2019; Canillo et al. 2020)

H2. There is no significant impact of subjective norms on entrepreneurial intention. The absence significance is a highlight of this study. One reason for the lack of impact could be that subjective norms do not have a direct effect on entrepreneurial intention; perhaps the effect is indirect. According to Turuk et al. (2020), subjective norms also have a moderation effect between the relationship of personal attitude and entrepreneurial intention and perceived behavioral control and entrepreneurial intention.

H3. Perceived behavioral control influences significant and positive entrepreneurial intention in 34.8%. This means, if students believe they are capable of becoming entrepreneurs, they are going to have a higher entrepreneurial intention. This result is similar to that of other studies (Canillo et al. 2020; Laguía et al. 2019). The self-perception about how I am is part of the cognitive side of entrepreneurship. The beliefs of the students have an important role in entrepreneurial intention, so universities need to foster the dimension of being during the entrepreneurship classes to create in the students the belief that they can become entrepreneurs (Azizi and Mahmoudi 2019; Ajzen and Fishbein 2005).

H4a, H4b, H4c. Entrepreneurship education did not show a moderate effect among variables. The absence of moderation is the main contribution of the article, which means that entrepreneurship education cannot change the relationships involved in the planned behavior theory. There could be some reasons for this result. One of them could be that the theory part of entrepreneurship is easy, but the real life of an entrepreneur is hard because it requires many resources (Henry 2020), and the effort of an entrepreneurship course is not enough to change the relationship between these variables. Then, the course should be designed especially for each specific student type (Giacomin et al. 2010) according to their level of entrepreneurship interest. Moreover, it could be considered, for example, that junior students and senior students react differently to the same teaching activities; for junior students, both in-class and out-of-class activities work, but, for senior students, only in-class teaching activities work (Arjomandi et al. 2021). Other variables, such as the lack of clarity of learning outcome expectations that students have about entrepreneurship courses (Harima et al. 2021), also create heterogeneous results; creating clear learning outcome expectations could help to have better results for entrepreneurship courses. Finally, entrepreneurship education success needs a wider approach because external support is necessary, like lectures by key actors in the entrepreneurial ecosystems, the government involved in entrepreneurship support, successful entrepreneurs, and potential investors (Chhabra et al. 2021).

The previous paragraph explained the findings of the absence of entrepreneurship education's impact due to reality demanding a lot additional elements like tailored courses according to the entrepreneurship intention of the students and support from key actors of the entrepreneurial ecosystem, that match with the negative effects that entrepreneurial ecosystems have on entrepreneurship activity in emergent economies as Mexico (Guerrero et al. 2021). Another explanation for this finding is the context of the study: the university students received entrepreneurship education from a public university that has a general program of entrepreneurship and does not make a differentiation among the students in this mandatory program because of the educational system that the university has, due to the fact that the entrepreneurship courses are designed as if they were any other subject, but entrepreneurship education demands more resources to foster entrepreneurship activity.

6. Conclusions

Generally, the main objective of a university in the entrepreneurship field is to foster entrepreneurial intention using entrepreneurship education. The results of this study indicate that it is necessary to achieve that goal by focusing on the variables that positively influence entrepreneurial intention. Personal attitude and perceived behavioral control are the constructs that influence entrepreneurial intention. A strategy to foster entrepreneurship intention is to create a positive perception in students about entrepreneurship (personal attitude) and to make students feel capable of creating a new firm (perceived behavioral control).

The main theoretical implication of this paper is the absence of the impact of entrepreneurship education as a moderate variable of the theory of planned behavior. This study contributes to proposing other factors to the theory that help us to understand the complexity of human behavior.

In conclusion, the entrepreneurship education should be carried out beyond entrepreneurship classes and include external resources such as lectures from potential investors and successful entrepreneurs, and facilitate networking with key actors of the entrepreneurial ecosystem, among others. Higher education institutions should also focus on designing entrepreneurship courses according to the level of entrepreneurial interest of the student because students with a higher interest in creating a new business need different types of knowledge than those who want to be employees in a company. Finally, institutional context and didactical resources need to be considered in developing an entrepreneurship strategy in a higher education institution (Lopes et al. 2023).

The managerial implications are mainly for business faculty members, including faculty managers and professors. The focus of business faculty managers is to deliver entrepreneurship education focused on the different types of university students and the teaching activities and content that will be relevant for each of them; for example, the students without an interest in an entrepreneurship career could be more interested in entrepreneurship education focused on employee entrepreneurial behavior. For that type of student, it is more useful to design courses that include the concept that they can create something innovative and explore business opportunities inside a company. That knowledge of entrepreneurial behavior will be helpful when the student is performing their jobs in the future because it has been demonstrated that some leaders and tasks performed in their daily job activities foster employee entrepreneurial behavior (Das 2023). Universities can help entrepreneurial ecosystems with labor forces already trained in these employee entrepreneurial behaviors. Professors should also focus on the needs of the students and adapt their teaching style to develop in students a positive attitude to entrepreneurship and self-confidence in their competence to become entrepreneurs, and increase entrepreneurial intention to create their own business or improve an existing one through employee entrepreneurial behaviors.

Limitations

The sample size was limited to a single university in Mexico, and only university students from the business schools were interviewed; the level of confidence given by the sample is 95%, so that gives a 5% error, which, in an ideal situation, could be lower with a greater number of university students surveyed. The time taken to conduct the study did not allow for a longitudinal study to be conducted in order to collect several measurements of the variables throughout the entrepreneurship courses, which would have enriched the data and information for analysis.

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