


# Article

# Factors Influencing Entrepreneurial Intention of University Students in China: Integrating the Perceived University Support and Theory of Planned Behavior

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**Abstract:** Entrepreneurial education has always played an important role in developing entrepreneurship. In recent years, China has been emphasizing the integration of innovative entrepreneurship concepts into university curricula. Entrepreneurial education can also contribute to the sustainability of business development. In the context of “mass entrepreneurship and innovation”, entrepreneurial education is important to promote the restructuring of the economic and business model, enhance the development momentum, and follow the innovation-driven development path. However, whether the promotion of entrepreneurial education will lead to entrepreneurial intentions of college students, and thus, specific proposals for the promotion of the entrepreneurial education model remains unclear. Therefore, this study adopted the theory of planned behavior perspective coupled with perceived university support to extend the theory of planned behavior framework and explain the effect of such support on student entrepreneurial intention. The study results revealed that perceived university support significantly affected student attitude toward entrepreneurship, which signaled universities’ critical role in establishing entrepreneurial spirit in students. A significant effect on behavioral control was also observed for perceived university support. Regarding the effects of perceived university support on attitude toward entrepreneurship and behavioral control, the results revealed the effect was far greater on attitude than on behavioral control. Such intention was not directly affected by subjective norms. Therefore, a scientifically rational entrepreneurship course system is critical for effective entrepreneurship education. Overall, encouraging students to engage in the continuous process of entrepreneurship through entrepreneurship courses can concurrently benefit overall economic and social development.



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## 1. Introduction

According to a Global Competitiveness Report published by the World Economic Forum, the deep economic recession caused by the coronavirus disease 2019 (COVID-19) pandemic continues and profoundly influences socioeconomic development. The report also revealed four paths of economic stimulus and transformation in the post-pandemic era; the paths include optimizing human capital, creating new job opportunities, and implementing large-scale skill training. The report clearly indicated the importance of innovative entrepreneurship [1]. The United Nations Educational, Scientific, and Cultural Organization argues that university students should be the main force creating new job positions rather than just seek jobs passively. Accordingly, providing entrepreneurial guidance to university students is a primary policy direction in China [2]. Despite establishing an entrepreneurship-friendly environment for these students, they still have a far lower entrepreneurship rate than their counterparts in developed countries [3]. Additionally,

compared with developed countries, Chinese entrepreneurship involves less technical skills and innovation, indicating room for improvement in the quality of Chinese entrepreneurial activities [4]. According to a report by Xinhua News Agency [5], promoting entrepreneurial infrastructure for social progress is the main policy pushed forward by the national government [6,7]. Given the substantial socioeconomic influence of businesses started by higher education graduates (contributions to job opportunity creation, economic growth, and social inclusion) [8].

The present study posited that university support further promotes entrepreneurial intention after the implementation of entrepreneurship education. According to the literature, systems and policies in favor of entrepreneurship encourage entrepreneurial activities [9], and higher educational attainment increases the possibility of successfully establishing a company with a high growth potential [10,11]. For students, starting a new company or business requires theoretical education on entrepreneurship, entrepreneurial practice and training provided by universities, and university support in the forms of concept development support and business development support [12].

The theory of planned behavior (TPB) has been used in recent years as a theoretical framework to explain university students' entrepreneurial intention [13,14]. According to the discussion, university support is a critical factor that merits further investigation. However, a literature review revealed a lack of research that extends the TPB to explain support factors in the environment (e.g., university support). Among studies on external support factors, none has employed TPB to discuss education-related factors [15–17]. Therefore, this study adopted the TPB perspective coupled with perceived university support (PUS) to extend the TPB framework and explain the effect of such support on student entrepreneurial intention. Overall, the major aim of this study was to investigate how university support factors in entrepreneurship affect student entrepreneurial intention, and the following research questions were proposed.

1. Does university entrepreneurship education affect the entrepreneurial intention of students?
2. Does PUS affect the entrepreneurial intention of university students?

For PUS, the study collected data through a questionnaire survey and analyzed the data by using structural equation modeling partial least squares (ISEM-PLS) to determine the effect of entrepreneurship courses on Chinese university students' entrepreneurial intention.

## 2. Literature Review

### 2.1. Theory of Planned Behavior

Becoming an entrepreneur is a planned behavior per se rather than a spontaneous decision [18]. TPB is the fundamental theory for explaining entrepreneurial intention [15,19–21]. Introduced by Ajzen [22], TPB is used to analyze factors affecting intention and to predict intention, which renders it a useful tool in research. The theory offers a critical and appropriate framework to explain individual planned behavior and thus allows researchers to predict entrepreneurial intention with consideration of both individual and social factors concurrently [14]. TPB contains three variables that affect entrepreneurial intention, namely perceived behavioral control (PBC, i.e., individuals evaluating a to-be-executed behavior according to its ease of execution), attitude toward entrepreneurship (personal belief in certain behaviors or actions, such as entrepreneurial spirit), and subjective norms (an individual's views on what people around them or people of influence, e.g., parents, friends, or coworkers, think about a certain behavior (starting business ventures). These variables were found to directly predict the entrepreneurial intention of entrepreneurs [15,22,23]. Since the introduction of TPB by Ajzen [22], PBC has been its core; entrepreneurial attitude and PBC both change entrepreneurial intention "from the inside", whereas subjective norms involve analyzing reasons that cause entrepreneurial intention to change according to the external environment of an entrepreneur. When these variables are satisfied, an entrepreneur's entrepreneurial intention grows stronger, and they have a higher chance of actually starting a business. Because the attitude of entrepreneurs toward entrepreneurship

changes over time, their entrepreneurial intention also changes with time. Therefore, higher education may realize such change through training or experience, which can possibly enhance self-efficacy and the perceived effectiveness and feasibility of entrepreneurship in students [24,25].

According to the aforementioned studies, researchers have extended their discussion of entrepreneurship education and related topics beyond simply explaining phenomena by using commonly adopted theories; furthermore, the expansion of TPB-based research models requires investigation into various phenomena [15,21,26,27]. This study employed TPB as its main theoretical framework for two reasons. First, the theory has provided an adequate theoretical foundation for previous research on entrepreneurship education and can be said, to an extent, to affect the formation of entrepreneurial intention. Second, entrepreneurial spirit is a planned behavior and thus cannot be developed without appropriate planning.

## 2.2. Perceived University Support

Perceived university support comprises three dimensions: business development support, concept development support, and educational support [12,16,28]. Educational support, according to previous research, improves student PUS by helping students accumulate experience or providing them with opportunities to put knowledge into practice, such as in business simulation, case studies, entrepreneurship speeches, or apprenticeship programs [29]. Another approach to enhancing PUS is providing resources in interpersonal relationship networks; interpersonal connections can provide specific professional knowledge (e.g., serving as a role model and providing one-on-one support) to students in entrepreneurship-related matters [12]. Educational support enhances graduates' willingness to expand their interpersonal network and strengthens their confidence in starting their own business after receiving entrepreneurship education [30]. Table 1 presents research topics related to TPB.

**Table 1.** Research topics on the theory of planned behavior (TPB).

Authors	Research Contexts	Independent Variable	Dependent Variable
Cheng [26]	E-learning	Subjective norm, behavior control, self-esteem, perceived usefulness, perceived ease of use, attitude	Continuance intention
Lee [31]	E-learning	Confirmation, satisfaction, enjoyment, concentration, subjective norm, behavior control, confirmation, perceived usefulness, satisfaction, continuance intention, perceived usefulness, perceived ease of use, attitude	Continuance intention
Al-Jubari et al. [20]	Entrepreneurial	Need satisfaction, need frustration, attitudes toward entrepreneurship, subjective norms, perceived behavioral control	Entrepreneurial intention
Munir et al. [32]	Entrepreneurial	Risk-taking propensity, locus of control, proactive personality, attitudes toward entrepreneurship, subjective norms, perceived behavioral control, control variable gender	Entrepreneurial intentions
Al-Jubari [15]	Entrepreneurial	Need satisfaction, attitudes toward entrepreneurship, subjective norms, perceived behavioral control	Entrepreneurial intention
Duong et al. [21]	Entrepreneurship	Personal attitude, self-efficacy, social capital, country norms	Entrepreneurial intention
Mes et al. [33]	Entrepreneurship	Gender, personal attitude, social norms, perceived behavioral control	Entrepreneurial intentions
Eid et al. [34]	Entrepreneurship	Autonomy, creativity, perceived behavioral control, workload, perceived desirability, subjective norms	Entrepreneurial intention
Otache [35]	Entrepreneurship	Entrepreneurship education, attitude Toward behavior, subjective norms, perceived behavioral control, employment intention, self-employment intention, paid-employment intention	Self-employment behavior, paid-employment behavior

Table 1. Cont.

Authors	Research Contexts	Independent Variable	Dependent Variable
Kim and Park [36]	Entrepreneurship	Professional achievement, social welfare, social relationship, external expectation, social escape, cognitive interest, assimilation, accommodation, home environment	Entrepreneurial intention
Karimi and Makreel [17]	Entrepreneurship	Openness to change, self-enhancement, attitude towards entrepreneurship, subjective norms, perceived behavioral control	Entrepreneurial intentions
Canova et al. [27]	Buying organic food products	Trust in organic food, attitude, subjective norm, perceived behavior control	Behavior, intention
Frühauf et al. [37]	Winter sport	Group, affective valence, attitude, subjective norm	Intention to engage in winter sport
Lin et al. [38]	Bicycle tourism	Sport habit, attitude, subjective norm, perceived behavioral control	Behavioral intention
Robertsen et al. [39]	Online games	Attitudes toward behavior, subjective norms, perceived behavioral control, supportive working conditions, internal working experience, autonomy, pressure of time, management, safety climate	Behavioral intention

Wegner et al. [28] discussed concept development support and business development support. Concept development support provides consciousness, motivation, and business thinking in the early stage of entrepreneurship; opportunities are recognized and developed during concept development [40]. Business development support is usually provided to startups rather than individual students at the late stage of entrepreneurship. Studies have shown that some universities support policies and practices that promote the entrepreneurial activities of students. For example, the Higher Education Commission, Pakistan, established the National Business Education Accreditation Council [24]. Public institutions can establish laws, regulations, and policies stipulating the assistance that governments must provide to encourage the entrepreneurial spirit, whereas private institutions define the culture, norms, beliefs, and expectations for entrepreneurial activities [41]. Research has revealed a constantly increasing number of innovative entrepreneurship courses in universities and consolidated the relationship between educational support and entrepreneurial intention [11], but students who actually proceed to entrepreneurship remain few in number [30].

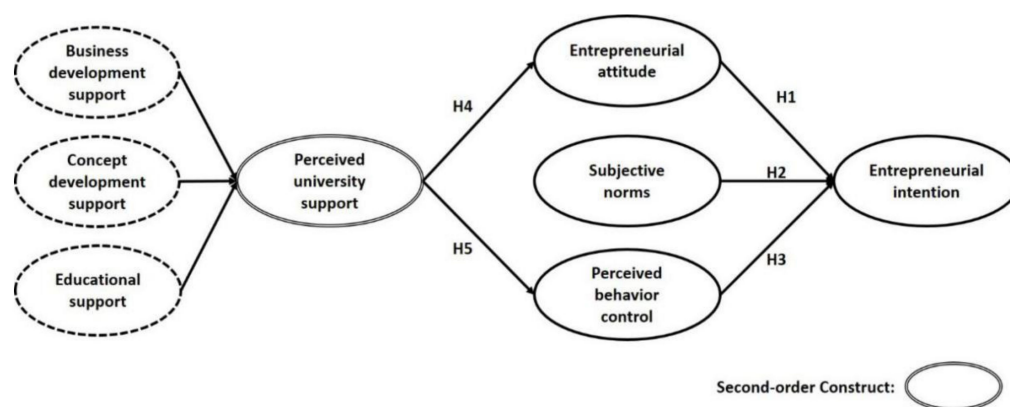
Despite the various objective assessment methods in favor of boosting entrepreneurial spirit in universities, further exploration is required into the effect of the implementation of entrepreneurship education on university students [30]; such exploration can be conducted by measuring student views on the university support or PUS, they have received. [42] regarded entrepreneurial spirit as a critical factor that contributes to economic growth and job opportunity creation and considered university support to be of utmost importance in fostering entrepreneurial intention. Studies have focused discussion on individual and environmental factors to find the determinants of entrepreneurial intention [8,43]. Many universities have shifted focus from traditional education to the education of entrepreneurial spirit, with the aim of increasing people's confidence in becoming an entrepreneur and putting their entrepreneurial ideas into practice [44,45].

Various studies have used TPB as their theoretical basis to discuss university students' intention of becoming an entrepreneur [15,20,21,32,35]. The literature has employed TPB to discuss how entrepreneurial intention is affected by attitude, entrepreneurial capacity, and the views of others. It also has investigated whether higher education institutions have provided adequate entrepreneurship support to enhance entrepreneurial intention in students; however, no study has integrated PUS and TPB in its discussion. Hence, to bridge the research gap, the present study included PUS in its discussion as an antecedent of TPB for theoretical integration.

### 3. Research Methodology and Hypotheses

#### 3.1. Research Methodology

This study recruited university students who received entrepreneurship education as participants and integrated the concepts of TPB and PUS to propose the research model shown in Figure 1.



**Figure 1.** Research model.

#### 3.2. Research Hypotheses

##### 3.2.1. Entrepreneurial Attitude

Studies have revealed one's attitude toward entrepreneurial spirit as a factor affecting entrepreneurial intention [20,46–48]. Higher education institutions realize such change through education or experience, which may enhance the effectiveness and feasibility of entrepreneurship [23,25]. Therefore, people who regard entrepreneurialism as a career path option that benefits them may have entrepreneurial ideas and start their own business. Accordingly, this study proposed hypothesis 1 as follows:

**Hypothesis 1 (H1).** *Attitude positively affects entrepreneurial intention.*

##### 3.2.2. Subjective Norms

Studies have also revealed subjective norms to be effective predictors of entrepreneurial intention [49–51]. Becoming an entrepreneur is a major decision, and, thus, individuals would probably seek suggestions and support from people around them when making such a decision; therefore, the views of people around an individual affect his or her decision to engage in entrepreneurial behavior [52]. Accordingly, this study proposed hypothesis 2 as follows:

**Hypothesis 2 (H2).** *Subjective norms positively affect entrepreneurial intention.*

##### 3.2.3. Perceived Behavior Control

People are likely to perform actions they consider easy and tend not to engage in actions they perceive as difficult. Since the introduction of TPB, perceived behavior control (PBC) has played a critical role in the TPB model. Veciana [53] argued that the control belief in PBC reflects the presence of resources and opportunities that one needs. Concurrently, such control belief may be partially based on past behavioral experience and may reduce the perceived difficulty of executing a behavior because the belief is usually affected by secondary behavioral information, such as the experience of acquaintances and friends and by other factors [36]. Entrepreneurial intention research has verified the relationship between PBC and entrepreneurial intention [49,50,54–56]. Accordingly, hypothesis 3 was proposed as follows:

**Hypothesis 3 (H3).** *PBC positively affects entrepreneurial intention.*



### 3.2.4. Perceived University Support

Henderson and Robertson [57] reported that entrepreneurship education and entrepreneurship support offered by universities are channeled through which students acquire knowledge relevant to entrepreneurship and affect the career development of students engaging in entrepreneurship. Therefore, PUS was employed in the present study to indicate the educational support provided by universities to students starting a business. PUS could prompt improvement in theoretical capacity for entrepreneurship and enhance student confidence in their capabilities. Knowledge benefits one's understanding of their capabilities, in turn benefiting their PBC. This may explain why Kolvereid and Moen [58] concluded that university students who attended entrepreneurship courses exhibited greater interest in becoming entrepreneurs than those who did not. Additionally, the impression entrepreneurship leaves on university students through entrepreneurship education may affect their attitude toward entrepreneurship afterward. Students who consider entrepreneurship "easy" are more likely to have a positive attitude toward it.

PBC and entrepreneurial self-efficacy are conceptually similar [59]. Studies investigating the entrepreneurial intention of university students have revealed PUS to be a primary factor in self-efficacy [12,28,60]. The present study thus extended the PUS explanation for entrepreneurial self-efficacy to PBC and inferred that a relationship existed between PUS and PBC. Hence, the following hypotheses were proposed:

**Hypothesis 4 (H4).** *Perceived university support positively affects PBC.*

**Hypothesis 5 (H5).** *Perceived university support positively affects attitude.*

### 3.3. Construct Operationalization

The question design of this study was modified from past literature. The PUS consisted of 13 questions, and the scale design was modified from Wegner [28]. The PUS was composed of three second-order constructs, namely: 6 questions of perceived educational support, 4 questions of perceived business development support and 3 questions of perceived concept development support. Second, the TPB was modified from the Al-Jubari [20] scale, which contains 6 questions of entrepreneurial intention, 5 questions of entrepreneurial attitude, 3 questions of subjective norm, and 6 questions of perceived behavioral control. All the study scale questions were measured using the seven-point Likert scale (1 = strongly disagree to 7 = strongly agree). The questions were initially translated into Chinese by two professors and then into English by another translator, who has accepted translation training. Since the questionnaire was administered and completed in China, the translation into Chinese allowed respondents to read the questionnaire without difficulty. Then a translator would translate it into English to ensure the accuracy of the original translation. The questionnaire was administered to college students who had participated in entrepreneurial education courses.

Once a preliminary version of the questionnaire was designed, two assistant professors were hired to revise it where appropriate to ensure study validity and usefulness. A pilot survey was conducted before the full-scale survey to eliminate any ambiguous or inappropriate wording in the questionnaire items, thus improving the content validity of the questionnaire [61]. University students from two classes, 54 in total, were invited to participate in the pilot survey. Due to the COVID-19 situation, the pilot survey was conducted online. Reliability analysis was performed on the questionnaire indicators by assessing internal consistency (Cronbach's  $\alpha$ ). The analysis revealed the Cronbach's  $\alpha$  values of all indicators to be greater than the suggested threshold 0.7 [62], ranging from 0.729 to 0.987. The result indicated that the questionnaire was suitable for the full-scale survey.

## 4. Results

### 4.1. Data Collection

Because conducting an in-person survey was challenging amid the COVID-19 pandemic, the questionnaire was distributed online. The online method was employed for its various advantages, including convenience, low cost, responsiveness, and wide sampling scope [63,64]. Survey participants were enrolled through convenience sampling to limit bias. The main reasons for selecting convenience sampling were its being a commonly adopted sampling method in research on university student entrepreneurial intention [19,20,59] and the study population being Chinese university students who attended classroom or practicum courses on entrepreneurship. To ensure precise sampling, the survey's URL was distributed through messaging apps, such as WeChat and QQ, to instructors at the same higher education institution as the authors, who then shared the survey with teachers at other higher education institutions; subsequently, these teachers distributed the survey's URL to their students, who could participate in the survey on an entirely voluntary basis.

To ensure the effectiveness and precision of the online distribution, the question "Have you attended any course related to innovative entrepreneurship at the university?" was included, accompanied by an additional item inquiring after the title of the course to aid the judgment as to whether the respondent was a suitable study participant. The survey was conducted mainly through wjx (<https://www.wjx.cn/>), an online survey platform in China. The survey was carried out between January and February 2021. As an incentive to boost the response rate, participants were told that they would have a chance to win 2–5 RMB in cash if they completed the survey.

The questionnaire of this study was posted on a survey website, wjx (<https://www.wjx.cn/>), a total of 1856 questionnaires from 89 universities in China were collected. To ensure the sample's quality, three indicators were used to screen the responses [65–67]. First, according to the initial pretest's completion time, it took 5 to 15 minutes to complete the questionnaire. Therefore, according to the practice of previous studies, participants finishing the survey within 3 minutes would be regarded as not filling it in responsibly, and their questionnaire was regarded as invalid. Second, a reverse question was included in the questionnaire design. If a student gave a non-reversed answer, the questionnaire was regarded as invalid. Finally, those with repetitive results or extreme values were also regarded as invalid. Following this strict screening, 1667 valid questionnaires were used for formal data analysis. Of all the respondents, the valid responses were 589 male, 1078 female, 927 only child, 740 not an only child.

### 4.2. Data Analysis

The collected data were analyzed using SPSS and PLS [68]. SPSS was used to analyze demographic data; SEM–PLS was employed for the measurement and structural model analysis mainly because it, compared with covariance-based SEM, involves analyzing the complex relationships between observed and latent variables. SEM–PLS has been widely adopted for analysis in research on marketing management, information management, organizational management, human resources management, and tourism management [69–73]. In contrast to conventional covariance-based SEM, whose use of maximum-likelihood estimation requires assumptions of normal distribution, SEM–PLS requires a relative sample size to estimate a complex model [10,74,75]. Moreover, the present study's research model was a second-order model with a reflective-formative type [76]. Unlike SPSS Amos, which supports only reflective indicators, SEM–PLS supports both reflective and formative indicators [77]. Finally, SEM–PLS has minimal requirements for measurement scale sample size and residual distribution, and its use facilitates measurement and structural model analyses [78].

Content validity, proposed by Straub et al. [79], assesses a method chosen by the researcher that can appropriately obtain structural integrity. When a formative or reflective construct is specified, obtaining the integrity of the construct is crucial. Because formative constructs are defined by their dimensions or measurements, the establishment of

content validity is definitely vital. The lack of a comprehensive definition of a formative construct can result in the negligence of crucial aspects, which leads to incorrect construct measurements [80]. To ensure the accuracy of the analysis of measurement items, this study consulted existing studies on perceived university support for its operational definitions, based on which the construct was defined as the formative indicator of a two-stage model concerning three reflective aspects: business development support, concept development support, and educational support [12,28]. Finally, to reduce the problem of common method variance, the questionnaire was deliberately paginated in this study for data collection. This enabled respondents to have sufficient rest time moving between pages, and the time intervals reduced the common method variance caused by the continuous use of the same rating scale [81].

#### 4.3. Measurement Model

In the study, perceived university support is a formative indicator, but the study structure also includes reflective indicators. Therefore, in addition to the factor loading reliability, convergent validity, and discriminant validity of reflective indicators [77,82], Hair et al. [77] also suggested that formative indicators should be considered for indicator collinearity and the relationship between indicator weights and statistical significance. Based on collinearity results, Hair et al. [77] suggested that a VIF below 5 indicates no collinearity problem. The results of all the constructs in this study ranged from 1.00 to 3.654, which shows that this study is in line with the suggested indicators in the literature. As for reliability, mainly in terms of the relationship between the reliability of the questionnaire and the accuracy of the measurement, the factor loadings have been suggested to be higher than 0.7 [77]. Based on the results of this study, the results of all factor loadings of reflective indicators are following past recommendations. For formative indicators, when the weight value of the indicator is not significant, but its factor loadings are high (suggested by the literature to be greater than 0.5), the indicator should be interpreted as a significant factor, and under such a premise, the factor will still be retained [77]. Therefore, all formative and reflective indicators in this study are retained, and, as shown in Table 2, both formative and reflective indicators are good.

Henseler et al. [83] stated that SRMR is the square root of the sum of squared differences between the model and the empirical correlation matrix, and a value less than 0.10 is considered a good fit [83,84]. In this study, the overall SRMR result is 0.047, which indicates that this model is acceptable. The reliability of internal consistency is usually assessed based on two indicators, that is, the composite reliability and the Cronbach  $\alpha$  [77]. Table 3 shows that all composite reliability values are greater than 0.70, indicating good internal consistency. The average variance extracted (AVE) is an indicator of the dispersion between the statistical sampling values and the expected values, and it is recommended in the literature that the AVE should be greater than 0.5. Table 3 shows that the AVE results are greater than 0.5, which indicates a good convergent validity [85].

Discriminant validity was employed to test the ability of measurement variables to discriminate between different constructs. The square root of the average variance extracted between constructs must be greater than the correlation coefficient between constructs. Table 4 illustrates the correlation coefficient matrix between constructs, and the diagonal elements are the square roots of the average variance extracted [85]. According to Table 4, all square roots of the average variance extracted are greater than the correlation coefficients between constructs, showing that all constructs had satisfactory discriminant validity.



**Table 2.** The analysis results of factor loading and weight.

Constructs	Items	Factor Loading (Weight)	t-Statistics
Business development support	BS1	0.862	68.899
	BS2	0.86	80.137
	BS3	0.912	134.163
Concept development support	CS1	0.896	97.47
	CS2	0.926	167.839
	CS3	0.919	119.307
	CS4	0.927	150.027
Educational support	ES1	0.92	133.218
	ES2	0.948	223.559
	ES3	0.93	163.567
	ES4	0.94	202.354
	ES5	0.948	177.657
	ES6	0.944	186.576
Subjective norms	SN1	0.923	61.391
	SN2	0.95	99.519
	SN3	0.943	90.736
Entrepreneurial intention	EI1	0.893	87.196
	EI2	0.831	59.928
	EI3	0.935	91.902
	EI4	0.938	102.721
	EI5	0.913	92.341
	EI6	0.912	96.872
Entrepreneurial attitude	AT1	0.908	92.375
	AT2	0.926	92.94
	AT3	0.872	74.85
	AT4	0.912	99.213
	AT5	0.931	87.525
Perceived university support (second-order construct)	BS	0.943 (0.522)	7.684
	CS	0.946 (0.533)	6.304
	ES	0.83 (0.004)	0.459
Behavior control	PBC1	0.905	63.404
	PBC2	0.934	72.02
	PBC3	0.951	83.362
	PBC4	0.931	72.588
	PBC5	0.946	88.233
	PBC6	0.946	87.994

**Table 3.** The analysis results of alpha, rho\_A, composite reliability and AVE.

Constructs	Cronbach's Alpha	rho_A	Composite Reliability	AVE
Business development support	0.852	0.854	0.91	0.772
Concept development support	0.937	0.937	0.955	0.841
Educational support	0.973	0.973	0.978	0.881
Subjective norms	0.933	0.933	0.957	0.881
Entrepreneurial intention	0.955	0.957	0.964	0.818
Entrepreneurial attitude	0.948	0.949	0.96	0.828
Behavior control	0.971	0.972	0.977	0.875

**Table 4.** Analysis of discriminant validity (Fornell–Larcker criterion).

Constructs	BS	CS	ES	SN	EI	AT	PBC
<b>BS</b>	<b>0.878</b>						
<b>CS</b>	0.785	<b>0.917</b>					
<b>ES</b>	0.73	0.836	<b>0.938</b>				
<b>SN</b>	0.588	0.662	0.618	<b>0.939</b>			
<b>EI</b>	0.552	0.553	0.496	0.717	<b>0.905</b>		
<b>AT</b>	0.589	0.649	0.586	0.827	0.841	<b>0.91</b>	
<b>PBC</b>	0.452	0.364	0.294	0.6	0.75	0.661	<b>0.935</b>

Notes: business development support (BS), concept development support (CS), educational support (ES), subjective norm (SN), entrepreneurial intention (EI), entrepreneurial attitude (AT), perceived behavior control (PBC).

Henseler et al. [83] introduced heterotrait–monotrait ratio of correlations (HTMT), an alternative method to evaluate discriminant validity. HTMT is defined as the value generated by comparing the averages of correlations of indicators across different constructs and within each construct (based on consistent loadings) [83]. If the HTMT is less than 0.90, discriminant validity exists between two reflective constructs. The highest HTMT value obtained in this study was 0.883. The HTMT results indicated that the model had excellent reliability and validity (Table 5).

**Table 5.** Analysis of discriminant validity (heterotrait–monotrait).

Constructs	BS	CS	ES	SN	EI	AT	PBC
<b>BS</b>							
<b>CS</b>	0.878						
<b>ES</b>	0.801	0.875					
<b>SN</b>	0.66	0.709	0.65				
<b>EI</b>	0.615	0.587	0.517	0.76			
<b>AT</b>	0.656	0.69	0.613	0.88	0.883		
<b>PBC</b>	0.499	0.381	0.303	0.63	0.777	0.686	

Notes: business development support (BS), concept development support (CS), educational support (ES), subjective norm (SN), entrepreneurial intention (EI), entrepreneurial attitude (AT), perceived behavior control (PBC).

#### 4.4. Structural Model

According to the PLS analysis results, this study applied the bootstrapping with 5000 resampling method to evaluate the PLS results [77]. The PLS analysis results of the structural model are shown in Figure 2, where the overall explanatory power is 77.4%,

and the explanatory power of constructs was  $R^2 = 43.1\%$  and  $18.6\%$  for entrepreneurial intention and perceived behavior control, respectively. Said analysis results projected that the proposed model had excellent explanatory power. Sutton [86] applied the theory of planned behavior to explain the effects of behavior and discovered that the models only explained 40%–50% of the variance in intention and 19%–38% of the variance in behavior. Therefore, the present research framework has greater explanatory power for entrepreneurial intention. This study adopted the definition that  $Q^2$  values of 0.02, 0.15, and 0.35, respectively, represent low, medium, and high predictive relevance [77]. The overall  $Q^2$  of entrepreneurial intention was 0.629 in this study, indicating high predictive relevance. In addition, this study performed Stone–Geisser’s  $Q^2$  [87], a cross-validated nonparametric test, to measure the predictive validity of the PLS model. Stone–Geisser’s  $Q^2$  involves using blindfolding to ascertain the predictive relevance of the research model; specifically, other latent variables are used to predict the observed variables for model quality assessment. The evaluation indices of the Stone–Geisser’s  $Q^2$  served as the assessment criteria—cv-communality and cv-redundancy assessed the cross-validated communality and redundancy of the structural model, respectively [87].

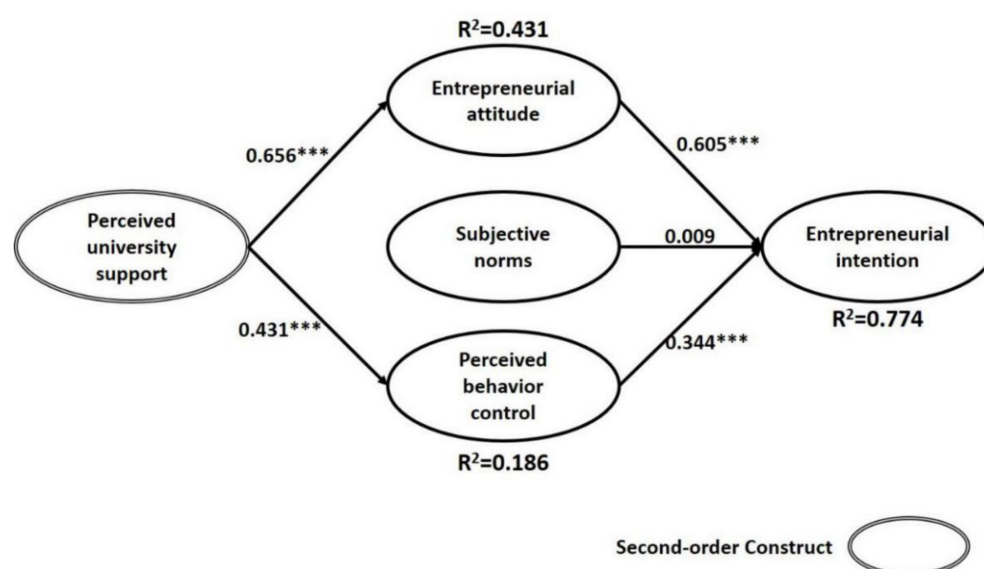


Figure 2. PLS results of the research model.

The empirical results support the hypotheses H1 to H5. The statistical results between the actual results H1 and H3 to 5 all support the hypothesis. Among, based on the assumptions of TPB’s original theory, both entrepreneurial attitude (H1) and perceived behavior control (H3) has significant effects on entrepreneurial intention, and it can be found that the influence path coefficient of entrepreneurial attitude is as high as 0.605, and the perceived behavior control is only 0.344. It is worth mentioning that subjective norms (H2) have no significant effect on entrepreneurial intention. Second, perceived university support has a significant relationship with both the entrepreneurial attitude (H4) and the performed behavior control (H5). In particular, the higher coefficient of the Perceived university support will affect the entrepreneurial attitude ( $\beta = 0.656$ ), on the contrary to the performed behavior control ( $\beta = 0.431$ ) influence coefficient is relatively low.

## 5. Discussions and Conclusions

### 5.1. Research Discussions

The results of this study indicate that perceived university support (H4) has a significant effect on entrepreneurial attitudes, which also implies that university support plays a key role in influencing entrepreneurial intentions among college students, which is consistent with previous studies [88] Therefore, when universities promote innovative

entrepreneurial courses and training mechanisms, they may also indirectly expand the basic knowledge and ability of college students to engage in entrepreneurship, which may lead to the idea of participating in entrepreneurship. Perceived university support (H5) also has a significant effect on behavioral control, which is similar to the results of previous studies [89,90]. In China, perceived university support following the promotion of entrepreneurial education encourages entrepreneurial self-recognition among college students [16]. To strengthen the entrepreneurial education curriculum, this study suggests that universities should consider how to build entrepreneurial courses and strengthen practical skills and encourage students to participate in various innovation and entrepreneurship competitions to develop their own entrepreneurial skills in the future. Regarding the influence of perceived university support on entrepreneurial attitudes and behavioral control, the study found that the influence of attitudes is much greater than behavioral control. This part can be interpreted as the fact that students' entrepreneurial ideas will be relatively enhanced after receiving entrepreneurial education courses. Therefore, in the future, with the continuous promotion of entrepreneurial education, universities should also provide more training and education programs for developing students' entrepreneurial skills.

Among students, who had received entrepreneurial education, entrepreneurial attitudes had a significant effect on their entrepreneurial intentions (H1), followed by perceived behavioral control (H3), while subjective norms (H2) had no direct effect on their entrepreneurial intentions. This finding is at variance with previous studies in which subjective norms had a significant effect on entrepreneurial factors [15,20,91]. An entrepreneurial attitude is the main influencing factor. This study hypothesizes that the main reason for this is the lack of practical course training, which resulted in the lack of actual improvement of students' practical entrepreneurial skills, and therefore, students were unable to effectively assess their entrepreneurial abilities. The lack of practical courses is mainly because most teachers have little or no opportunity to practice or experience entrepreneurship [92]. In addition, practical entrepreneurial courses help to strengthen students' feelings, experiences and skills about entrepreneurship and significantly increase their entrepreneurial intentions. Entrepreneurial courses and lectures can indirectly impart entrepreneurial knowledge and skills, as well as improve students' entrepreneurial ideas; in contrast, innovative entrepreneurial competitions focus on formalism, commercial publicity and are utilitarian in nature, which is an important concern when promoting the form and planning of entrepreneurial education courses. Moreover, entrepreneurs are more autonomous [93] and may actually be less influenced by external factors. In contrast, the subjective norm in this study refers to the pressure from the perception of entrepreneurship by people in the social environment [22], which mainly comes from the consideration of family or close people from the perspective of the optimal solution for future development, rather than the result of analysis and discussion in the context of the environment and the actual situation of the person.

## 5.2. Research Conclusions

In response to the above discussion, this study proposes the following two suggestions: (1) In terms of curriculum design, for the deepening of the introduction of practical courses, the needs of students in entrepreneurial education courses vary by major, so the course contents should be developed for different majors and disciplines. (2) In terms of introducing practical education, since most teachers in universities are directly involved in university education after their postgraduate studies, they lack practical training related to innovation and entrepreneurship. Therefore, when offering innovation and entrepreneurial courses in the future, it is necessary to strengthen the construction of dual tutor system courses and strengthen the cultivation of college students' entrepreneurial ability combined with the lectures of tutors from enterprises.

### 5.3. Implications for Practical and Research

From the perspective of university support, this study incorporated TPB into investigating how university entrepreneurship education affects university student entrepreneurial intention. The results provide critical insights for government agencies formulating entrepreneurship education policies and for universities implementing entrepreneurship education. First, China has, at the governmental level, established various policies aimed at encouraging student entrepreneurial behavior; to realize the “mass entrepreneurship and innovation initiative,” it requires all Chinese higher education institutions to provide entrepreneurship education to students. The study results verified that university support is a crucial factor in student entrepreneurship. Therefore, a scientifically rational entrepreneurship course system is critical for effective entrepreneurship education [94]. Psychological education for entrepreneurs is equally vital. A favorable environment for entrepreneurial psychology education can provide for the needs of university students starting a business [95]. In addition, for most students, the best entrepreneurship education is business internship programs, training in startup incubators, the Know About Business program, and tabletop exercises for emergency response plans [96]. Overall, encouraging students to engage in the continuous process of entrepreneurship through entrepreneurship courses can concurrently benefit overall economic and social development [60,97]. Therefore, designing entrepreneurship courses according to specific professions is necessary to ensure optimal resource allocation and thus enhance the efficiency of investment into entrepreneurship education. Moreover, this study recommends that education institutions establish a course system according to policies and focus on students’ entrepreneurial goals to provide sufficient support for entrepreneurship education. Universities can hold innovative entrepreneurship competitions and establish startup incubators for students to better prepare them for future entrepreneurship after graduation and reduce the number of risks they will face in the process of starting a business.

In terms of the study’s theoretical significance, it addressed the lack of discussion of PUS under the TPB framework. Building on research that has verified the relationship between PUS and PBC [12,28,60], the present study incorporated the PUS concept into the TPB framework to provide a new perspective on relevant topics and to supplement theoretical discussions of TPB. Furthermore, this study adopted the three-dimension (i.e., business development support, concept development support, and educational support) explanation of PUS established in the literature [12,28,60] to form the PUS construct and adopted a second-order statistical analysis for verification of the relationships between PUS and the three dimensions. This approach further consolidated the relationship of PUS with the three dimensions, serving as an insightful reference for future researchers seeking to adopt the construct for analysis.

### 5.4. Limitations and Future Research

This study exhibited some limitations. First, it employed a questionnaire survey for data collection and analysis. For students, who received entrepreneurship education, the empirical analysis revealed only relationships between the constructs; further research is required to explore other factors in their future entrepreneurial intention. Accordingly, future research may integrate qualitative and quantitative methods to discuss new perspectives on such factors. Second, the study sample did not include students from universities in all Chinese provinces, and student values may vary across geographical locations. Therefore, future research may expand its sample to include data from universities in different regions to enhance the external validity. Third, the findings were obtained through a cross-sectional design. Future researchers studying entrepreneurship education may adopt a longitudinal design and produce different results. Fourth, this study investigated only the effects of PUS, attitude, subjective norms, and behavioral control on entrepreneurial intention. Various other factors (e.g., creativity and family) that affect such intentions exist. Hence, future research may include other factors for a more in-depth discussion of the topic.



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