

## Article

# Influences of University Education Support on Entrepreneurship Orientation and Entrepreneurship Intention: Application of Theory of Planned Behavior

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**Abstract:** This study examined the impact of university education support on entrepreneurial intention among higher education students in the Kingdom of Saudi Arabia. The study adopts the theory of planned behavior (TPB) as the theoretical foundation and examines the effect of constructs of TPB as mediating variables between university education support and entrepreneurial intention. The study adopted a quantitative research approach through a questionnaire survey directed to senior students at King Faisal University (KFU). The results of SEM “structural equation modeling” with AMOS software showed that university education support has a significant positive direct impact on entrepreneurial intention. It also has significant positive and indirect effects through the three constructs of TPB, which were found to have a significant impact on entrepreneurial intention among higher education students. This research result sends several important messages to higher education policymakers in relation to the promotion of entrepreneurship intention among higher education students. The results also have some theoretical implications for scholars, which are also discussed in the study.

**Keywords:** university educations support; entrepreneurship orientation; entrepreneurial intention; theory of planned behavior; Kingdom of Saudi Arabia



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## 1. Introduction

Entrepreneurship has long been considered the backbone of social development due to its enormous significant impacts, e.g., developing economies ([1] economic growth [2], social development [3], and ensuring the innovation and competitiveness of business [4]. Entrepreneurship is viewed as synonymous with self-employment, hence it is believed to be a suitable strategy for addressing issues like employability, specifically among young people [3,5]. As a result, governments around the world prioritize entrepreneurship and create an entrepreneurial ecosystem that includes policy, financial assistance, entrepreneurship education, and environmental development to inspire university students to launch their own ventures [6]. In particular, university students are considered as promising sources of potential entrepreneurs [7].

The Kingdom of Saudi Arabia (KSA), as a developing country, promotes Saudi youth to consider entrepreneurship as a career path [8]. However, *The Global Entrepreneurship Monitor GME 2020* [9] has noted that one of the most pressing issues confronting Saudi Arabia is the country’s low level of entrepreneurial intention among youth, which lags behind international and regional norms. Therefore, the government promotes entrepreneurship

activities and supports graduates in various colleges in creating private businesses in order to alleviate the youth unemployment problem. According to Al-Mamary [10], there are thousands of higher education graduates in KSA annually, and the majority of graduated students preferred to have a governmental job, while a few of them are willing to start up their own businesses or be an employer in the private sector. However, this becomes a troubling fact for the public sector and governments. As a result, it is argued that the government should encourage graduates to pursue self-employment rather than engage in public sector employment [11]. In this context, Al-Mamary et al. [3], reported that the Saudi labor market is unable to absorb such large numbers of annually graduated students. Therefore, the decision-makers of the KSA have recognized the importance of entrepreneurship as job creation for youth; hence, entrepreneurship was prioritized and added to the national agenda [12]. For example, the government established a special authority known as “Monsha’at” to assist small and medium size projects and to promote the spirit of entrepreneurship. Consequently, the leadership of KSA is currently working at a rapid pace to reform laws and regulations, remove barriers and improve access to financial services in order to support youth entrepreneurs [10]. Furthermore, the KSA government has provided financial and regulatory provisions for colleges across the kingdom to actively include entrepreneurship in their educational programs and curricula [8]. In particular, Veciana et al. [7] suggested that the higher institution has an important role in encouraging university students to engage in entrepreneurial activities. University students supposed to be a successful entrepreneur, if they have university and government support [13]. Furthermore, universities have an important role to play in supporting students’ intention and engaging in entrepreneur activities. Nevertheless, Elshaer & Saad [6], proved that the role of university support with regards to entrepreneurship intention has not been studied sufficiently. A small number of studies have been conducted in the developing countries or Arab countries to examine the play role of university education in forming the intention of entrepreneurs [14].

It is certainly crucial to examine the factors that could make higher education impact successfully on students to become entrepreneurs [15,16]. Earlier studies (e.g., [3,16–18]) confirmed that the best indicator of entrepreneurial behavior is entrepreneurial intention, because it considers the initial step to being an entrepreneur. Entrepreneurial intentions can be described as a desire to establish a business or to be self-employed [19]. Scholars (e.g., [20]) have paid special attention to entrepreneurial intention and the factors that influence the intention of entrepreneurs.

The theory of planned behavior (TPB) provides the theoretical basis for understanding an individual’s intention to engage in a particular behavior. TPB is viewed as a stronger and more effective research theory than any other theory for analyzing people’s intentions to start a new business [21]. The individual intention is determined by three factors: attitude towards behavior, perceived behavioral control, and subjective norms. Based on TPB theory, attention regarding how much a person planned to accomplish a certain behavior are attitudinal factors, which are effective and accurate predictors of behavior [22]. Attitude is described as an overall positive or negative assessment of an individual’s behavior [17]. Individuals seem to evaluate in favor of or against a behavior before forming an intention. A positive attitude for starting a new venture is formed when the potential entrepreneur considers it appropriate and profitable [14]. A subjective norm refers to the impact of a person’s family, friends, or other referents in persuading them to launch a new business, while perceived behavioral control reflects a person’s perceptions about the difficulty of carrying out an activity [17].

Despite earlier studies that tried to identify the role of university support and its impact on the entrepreneurial intentions of university students, some issues remain. Firstly, little research has been conducted to investigate the direct impact of university education support on students’ entrepreneurial intentions, yet their study outcomes were not consistent [18]. For instance, a study conducted by Walter et al. [23], indicated that there is no significant connection between self-employment intentions and entrepreneurship support

programs. Similarly, [24], asserted that university education support is not significantly linked the critical qualifications of entrepreneurial intentions (i.e., feasibility and perceived desirability). To the contrary, some studies confirmed that there is a positive relationship between them [25–27]. There is inconsistency in the results regarding the relationship between entrepreneurial intentions and university support; hence, a recent study by Lu et al. [18] suggested that more research is required to investigate this relationship.

The purpose of this research is to examine the link between university education support, students' attitudes, subjective norms, and perceived control of their entrepreneurial intentions. The research examines to what extent the three dimensions of TPB affect students' intentions toward entrepreneurship. The current research extends the use of TPB to verify entrepreneurial intention among higher education students. The study adopts a comprehensive model which examines the direct impact of university education support on students' entrepreneurial intention and the indirect influence through the dimensions of TPB, i.e., personal attitude, subjective norms and perceived behavioral control. More specifically, the current research addresses four objectives. First, it examines the direct impact of university education support on the intention of higher education Saudi students. Second, it examines the direct impact of university education support on the dimensions of TPB. Third, it tests the direct impact of the dimensions of TPB on the intention of higher education Saudi students. Fourth, it investigates the mediating roles of personal attitude, subjective norms, and perceived behavioral control in the relationship between university education support and student intention. The current research establishes relevant implications for policy-makers, practitioners, and academics, particularly in Saudi Arabia.

To achieve the research aim and the four objectives, the article is structured into six sections. Section 1 discusses the research problem and presents the research objectives. Section 2 presents the theoretical background and develops the research hypotheses. It also shows the research conceptual model. Section 3 presents the research methods, which adopted participant selection, instrument design and data analysis methods. Section 4 shows the findings of the research. Section 5 discusses the findings and presents the implications for scholars and policy-makers in higher education. Section 6 concludes the study and highlights its limitations as well as opportunities for further research.

## 2. Theoretical Background and Hypothesis Development

### 2.1. Theory of Planned Behavior

Numerous models have been employed in different studies to measure the intentions of entrepreneurship, i.e., the theory of planned behavior; the entrepreneurial event mode; theory of reasonable action. Out of these theories, TPB is the most frequently used paradigm to explain how education influences entrepreneurial intentions [28]. The TPB contends that a person's behavioral intention is determined by personal attitudes, personal norms, and perceived behavioral control. Subjective norms (SN) are the perceived societal pressures from others such as friends, families, or/and relatives to take (or not) a specific action. The term "perceived behavioral control" (PCB) relates to the assumption of ease or difficulty in undertaking a particular behavior. Personal attitude toward entrepreneurship is described as the degree to which the person is committed to the new venture or the idea of being an entrepreneur [17]. In this context, Kolvereid [29] indicated that entrepreneurial attitude, perceived behavioral control and subjective norms have a direct influence on entrepreneurial intentions. There is a substantial body of empirical research on TPB (e.g., [30–32] which validates its application in measuring individuals' intention and behavior to start new businesses. Nevertheless, their relative importance and degree of influence differ in each situation and country [33].

### 2.2. University Education Support and Entrepreneurial Intention

Earlier studies (e.g., [2,34–36] confirmed that formal education alters students' attitudes, influences their potential career paths, and has a major long-term effect on their entrepreneurial mentality. Likewise, Turker and Selcuk [37], indicated that entrepreneurial

education, particularly at the college level, is crucial in fostering students' entrepreneurial intentions. Universities can support students' entrepreneurial intentions through different methods such as seminars, theoretical lessons, practical sessions, and entrepreneurship activities. This promotes students' interest to undertake an entrepreneurial career post-graduation. Therefore, Shah et al. [38] asserted that there is a positive relationship between university support and students' intention of entrepreneurs. Similarly, Nastiti et al. [13] argued that university graduates are expected to be successful entrepreneurs because universities supported them with knowledge and skills; hence, they have a positive intention towards entrepreneurship. According to [39], university education has played a key role in inspiring entrepreneurship for different reasons. Firstly, education provides students with autonomy, independence, and self-confidence. Secondly, the awareness of career choices and its alternatives. By the end of the first half of 2022, the number of startups in the KSA reached 892,063, an increase of 25.6% compared to the final quarter of 2021. The majority of startups in KSA were founded by university graduates [12,14]. Thirdly, universities and education provide students with skills, training, and knowledge that are needed to be entrepreneurs. To conclude, generating more entrepreneurs will promote innovation and economic improvement. Therefore, higher education institutions and universities tend to deliver entrepreneurial education to achieve these objectives. In particular, entrepreneurial education has an important role to play in promoting students' level of intention to start their new businesses [40]. Thus, we propose the following hypothesis:

**Hypothesis 1 (H1):** University education support has a significant positive influence on the intention of higher education students to be entrepreneurs.

### *2.3. University Education Support and Subjective Norms*

Subjective norms assess the perceived pressure of social networks that significant "reference individuals" might place on us to establish a business or not [41]. People such as friends, parents, and partners, as well as organizations and societies, are the main source of pressure. According to Ajzen and Fishbein [17], social norms are determined by a motivation to comply and normative views. When students feel that their university environment supports them, they are more likely to start new businesses [42]. This could be a result of the university's support for entrepreneurship, which shows what the government, academic institutions, and society's expectations from university students are in terms of entrepreneurship and starting up their own businesses [18]. Thus, we propose the following hypothesis:

**Hypothesis 2 (H2):** University education support has a positive influence on higher education students' subjective norms.

### *2.4. University Education Support and Personal Attitude*

Entrepreneurial attitude refers to a person's opinion, perceptions, and preferences with regard to entrepreneurship [43]. According to Turker and Selcuk [37], education support has a significant influence on the intention of entrepreneurship. To clarify, universities that provide students with an appropriate knowledge drive for entrepreneurship (i.e., training programs and financial support) will increase the probability of students being involved in new business creation [44]. Positive expected outcomes such as increased economic yield, autonomy, and independence lead students to have a positive attitude towards entrepreneurial behavior; nevertheless, undesirable behavior expectations of outcomes will discourage entrepreneurial enthusiasm [45]. According to Mueller [46], attitude is affected by several factors such as education, personality, personal values, earlier experience, etc. As a result, it has been suggested that entrepreneurship education can promote a positive personal attitude among university students by highlighting the benefits of entrepreneurship [47]. Furthermore, the entrepreneurial training opportunities and financial support provided by universities may diminish students' reluctance to undertake

entrepreneurial risks and encourage a positive entrepreneurial attitude. Hence, it could be hypothesized that:

**Hypothesis 3 (H3):** University education on entrepreneurial knowledge positively influences the intention of higher education students to be entrepreneurs.

#### *2.5. University Education Support and Perceived Behavior Control*

Entrepreneurship education and support provided by universities is a channel through which students gain the skills and knowledge related to entrepreneurship and influences the career expansion of students participating in entrepreneurship [48]. According to Su et al. [49], university support could lead to an increase in the theoretical foundation for entrepreneurship and improve student confidence in the competencies. Knowledge improves one's perception of their abilities, in turn promoting their PBC. Furthermore, student attitudes toward entrepreneurship may change as a result of the effect of entrepreneurship education. It is more likely that students will view entrepreneurship favorably if they believe it to be easy. Conceptually, PBC and entrepreneurial self-efficacy are associated [50]. Earlier studies examining the intention of university students toward entrepreneurship confirmed that university education support is an essential factor in self-efficacy [42,51,52]. Therefore, we propose the following hypothesis:

**Hypothesis 4 (H4):** University education support has a positive influence on higher education students' perceived behavior control.

#### *2.6. Subjective Norms and Entrepreneurial Intention*

Subjective norms are social norms or social variables. This metric has to do with the perceived social pressure to engage in or refrain from engaging in entrepreneurial activities [17]. Social norms significantly influence students' desire and behavior to pursue higher education as well as more demanding entrepreneurial endeavors [53]. The majority of individuals may be encouraged or dissuaded from engaging in entrepreneurship depending on how the societal norms are measured, such as family and friends [33]. Generally, this kind of norm contributes less strongly to intention [54] for persons who have a strong locus of internal control [17,55] compared to those who are more action-oriented [55,56]. Studies have not consistently discovered a strong connection between subjective and entrepreneurial intention [57]. However, other studies confirmed that subjective norms had a positive effect on entrepreneurial intention [32]. Based on these arguments, the hypothesis can be formulated as:

**Hypothesis 5 (H5):** Subjective norms have a significant positive influence on the intention of higher education students to be entrepreneurs

#### *2.7. Personal Attitude and Entrepreneurial Intention*

According to Fini et al. [58] attitude can be defined as "what we feel about a concept (object of the attitude), which may be a person, a brand, an ideology, or any other entity about which we can attach feeling". In the context of entrepreneurship, attitude is described as the individual traits that lead individuals to have a favorable view toward the entrepreneurial intention. Kadir et al. [59] indicated that the attitude of undergraduate students' positively influences students' intention to be an entrepreneur in the future. Furthermore, an individual's desire to engage in entrepreneurship may be strengthened by the students' positive and encouraging attitude [33]. Likewise, Maes et al. [60] argued that individuals' intention to engage in an entrepreneurship career is indirectly determined by personal attitude and perceived behavior, as well as by social norms. To conclude, the most significant predictor of entrepreneurial intention was attitude, followed by subjective norms and perceived behavior control [61]. Based on these arguments, we can propose that:

**Hypothesis 6 (H6):** Personal attitude toward behavior has a significant positive influence on the intention of higher education students to be entrepreneurs.

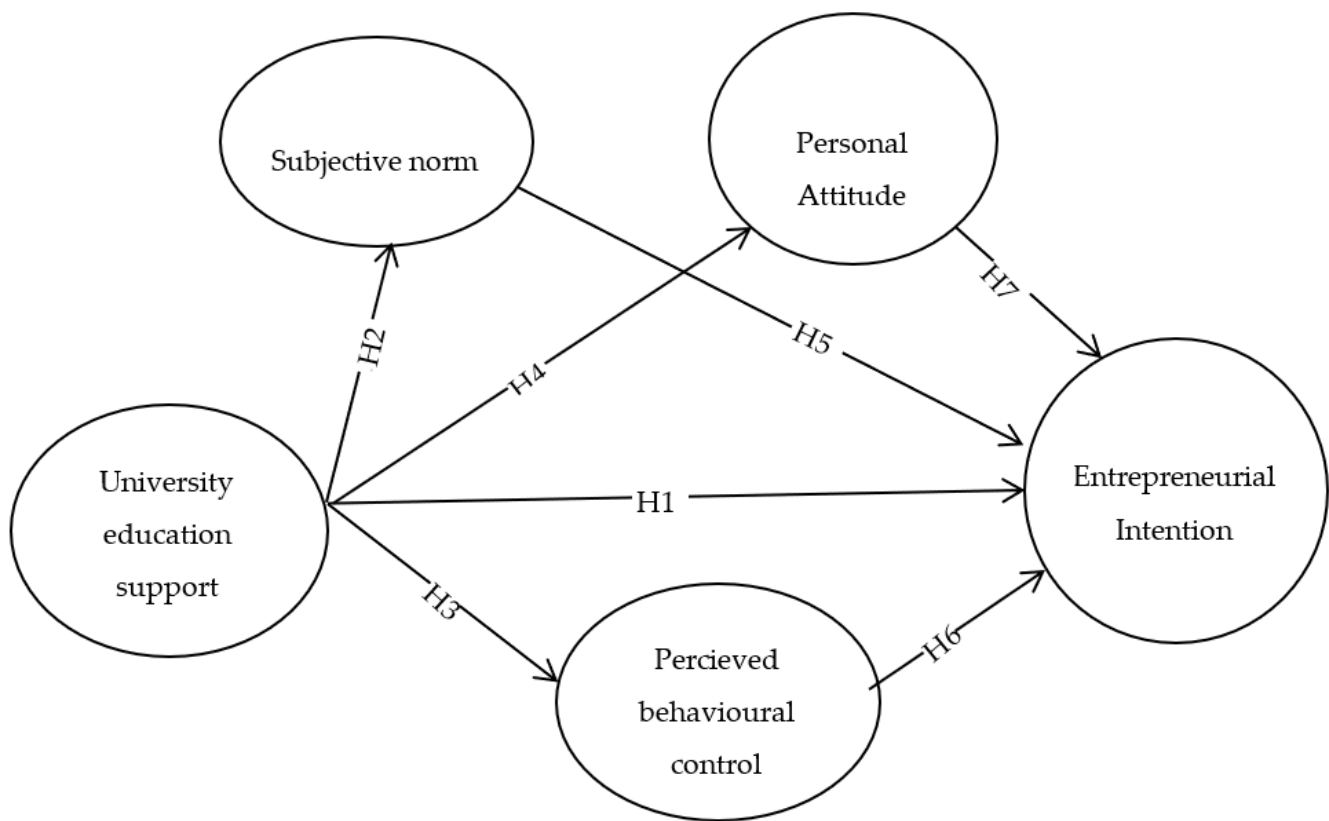
### *2.8. Perceived Behavior Control and Entrepreneurial Intention*

PBC refers to an individual's impression of their capability to carry out a specific behavior determined by a person's perception of ease or difficulty in carrying out the behavior [41,62]. According to [41] Ajzen, the significance of this variable in the new firm launching process stems from its predictive ability, as it represents the individual's belief that the person will have the ability to regulate that behavior. Kadir et al. [59] argued that behavioral control correlated positively with entrepreneurial intention. Based on the findings of a study conducted by Souitaris et al. [63] on students' intentions toward entrepreneurship, university students were found to have strong self-confidence, which could have a favorable effect on their perceived behavioral control. Several studies (e.g., [22,64]) have demonstrated that taking perceived behavioral control into consideration might improve behavior prediction. While theoretically perceived control is anticipated in the intention-behavior relation, most researchers have focused on the additive effects of intention and control perceptions. Hence, the study hypothesis can be formulated as follows:

**Hypothesis 7 (H7):** Perceived behavior control has a significant positive influence on the intention of higher education students to be entrepreneurs.

### *2.9. The Mediating Role of Personal Attitude, Subjective Norms, and Personal Attitude in the Relationship between University Education Support and Entrepreneurial Intention*

According to the previous discussions, according to TPB, there are three key motivating elements or antecedents for entrepreneurial intentions: attitudes, personal norms, and perceived behavioral control. Other factors such as culture and demographics are likely to indirectly influence entrepreneurial intention by the three motivational constructions [50]. In this context, university education support as a distal dimension may indirectly influence entrepreneurial intention via personal attitudes, subjective norms, and perceived behavioral control [18]. To clarify, TPB assumes that an individual will have higher intent to engage in certain conduct if they have a more positive attitude about it. Since attitudes are not as consistent as personality traits, they might vary with time and as a result of a person's interactions with their environment [65]. Therefore, during studying time, university students' entrepreneurial attitude. Thus, while studying, college students' entrepreneurial intention might be affected by a strong college entrepreneurial environment and different entrepreneurial education activities (e.g., training, lectures, courses, curricula, and competitions). Second, subjective norms refers to a person's' perceptions of social pressure. According to TPB, a person's plan to perform a certain behavior if they receive support from others. Students' decisions to be entrepreneurs are usually made post-consultation with valued people in their social network and, certainly, their social network includes university teachers [66]. Therefore, the attitude of university teachers and classmates toward the entrepreneurship of students may influence their decision to choose entrepreneurship as a career. Third, students might plan to engage in entrepreneurship activities if they have a strong belief in their knowledge, capabilities, and skills. The multi-education courses which students receive during their years of study can enhance students' self-efficacy and confidence that lead to a better feeling of competence to proceed with entrepreneurial tasks [67]. Practical sessions and training that specifically relate to entrepreneurship education might assist the student in obtaining direct experience via simulation exercises [18]. Based on the above discussion and as seen in Figure 1, we can propose that:



**Figure 1.** The theoretical model.

**Hypothesis 8 (H8):** Subjective norms mediate the relationship between university education support and students' entrepreneurial intention.

**Hypothesis 9 (H9):** An entrepreneurial attitude mediates the relationship between university education support and students' entrepreneurial intention.

**Hypothesis 10 (H10):** Perceived behavior control mediates the relationship between university education support and students' entrepreneurial intention.

### 3. Methodology

#### 3.1. Participants

A random sample of 390 students enrolled in the fourth year of King Faisal University (KFU) were selected. KFU is located at the eastern provenance of the Kingdom of Saudi Arabia. The targeted graduates were taught a course entitled Entrepreneurship Principles and were enrolled in the Faculty of Business Science & Information Technology, and the Faculty of Arts. The graduates were selected to fill out the survey because they are likely to be career-focused and open to new opportunities. In March and April of 2022, we sent out questionnaires and collected them from the graduates who were eligible to participate. The study team was able to distribute 420 questionnaires, 400 of which were handed back with answers, and 10 of which were discarded due to incomplete data, for a final total of 390 valid questionnaires, with a response rate of 92%. An independent sample t-test compared the mean score of early and late answers. No significant ( $p > 0.05$ ) variations were found between them, implying that non-response bias was not a concern in our study [68].

#### 3.2. Instruments and Procedure

The regular psychometric procedures were adopted to develop the multi-item current study measures from previously published research papers. This method generated five

factors that construct the study scale, and each factor has its set of reflective variables that were modified to fit the study context. The questionnaire was designed to have seven-Likert scale choices, where 1 implies “strongly disagree” and 7 means “strongly agree”. University entrepreneurial education support (EEES) was measured by four items derived from Yi [69]. Sample items include: “my university provides students with the financial and policies means to start a business”; and “my university offers courses on entrepreneurship”. In our study, the EEES scale demonstrated a good Cronbach’s alpha ( $\alpha$ ) reliability of 0.985. Likewise, the intention of entrepreneurship was measured by six variables established by Chen et al. [70] and Liñán & Chen [71]. Some examples include: “I have very seriously thought of starting a firm”. With a Cronbach’s alpha ( $\alpha$ ) value of 0.971, the entrepreneurship intention scale was found to be highly reliable. Finally, the theory of planned behavior (TPB) was operationalized by the three commonly known dimensions introduced by Ajzen [72]. The first dimension has five items and describes graduates’ attitudes to start up a business (personnel attitude, PA). Sample items: “If I had the opportunity and resources, I’d like to start a firm”. The second dimension (subjective norms, SN) has three items and explains the relative social pressure to engage in entrepreneurial behaviors or refrain from doing so. Specifically, it would refer to the belief of whether or not “reference people” would support the choice to be an entrepreneur. The third dimension has six reflective items that describe the graduates’ perceived behavior control (PBC). Sample items include: “I can control the creation process of a new firm”. The TPB scale showed a high reliability with a satisfactory Cronbach’s alpha ( $\alpha$ ) values (PA,  $\alpha = 0.954$ ; SN,  $\alpha = 0.975$ ; PBC,  $\alpha = 0.982$ ).

To ensure the questionnaire’s accuracy and certainty, it was reviewed by ten graduates and eleven professors from business schools. There was no change made to the questionnaire’s actual content. The data collected is guaranteed to remain anonymous and confidential, as stated in the introduction statement of the questionnaire. According to Nunnally [73], “common method variance” (CMV) may be a problem because the study questionnaire uses a self-reporting collecting method. In order to deal with CMV, researchers have used Harman’s single-factor analysis, wherein the extracted factors are all set to 1.0. An EFA “exploratory factor analysis” test conducted in SPSS using the non-rotational method revealed a unidimensional structure, with a single factor accounting for 41% of the variance (less than 50%), indicating that CMV is not an issue [68].

### 3.3. Data Analysis

The analysis of the data was carried out in a series of sequential steps: first, descriptive statistics were analyzed with SPSS; then, scale convergent and discriminant validity were investigated with first-order confirmatory factor analysis. In the end, the covariance-based structural equation modeling (COV-SEM) method was used in our research as the primary data analysis method in order to test the hypothesized relationships and analyze the gathered empirical data using the Amos v24 program. It is widely believed that COV-SEM, which is used extensively in the field of management, produces reliable results. COV-SEM is a non-parametric technique that takes advantage of the variance that can be explained in latent dimensions, which are characteristics that cannot be directly observed in any way. COV-SEM can analyze complex research models that incorporate theories and empirical data.

## 4. Results

### 4.1. Descriptive Analysis

The data was equally distributed between males (50%) and females (50%), where 85% of respondents were between the ages of 17 to 25 years old. 35% of the graduates were from the faculty of business administration, 30% from the faculty of computer science and information technology, 20% from the faculty of arts, and 15% from the faculty of agriculture and food science.

Table 1 reveals the participants’ descriptive analysis. Mean (M) values for the respondents ranged from 4.34 to 5.40, while standard deviation (S.D.) values ranged from 1.03



to 1.80, inferring a greater degree of scatter and less centralization of the data around the mean [74]. Results for skewness and kurtosis can be seen in Table 1, and the fact that neither value is greater than  $-2$  nor less than  $+2$  indicates that the data follows a normal distribution curve [74].

**Table 1.** Descriptive analysis.

Abbreviation	Items	M	S. D	Skewness	Kurtosis
<b>University entrepreneurship education support (Yi, 2021, [69], <math>\alpha = 0.985</math>)</b>					
UES_1	“My university offers courses on entrepreneurship principles”	5.20	1.80	−0.77	−0.56
UES_2	“My university motivates students to start a business”	5.15	1.86	−0.76	−0.62
UES_3	“My university offers project work focused on entrepreneurship”	5.17	1.81	−0.73	−0.63
UES_4	“My university provides students with the financial and policies means to start a business”.	5.15	1.82	−0.71	−0.71
<b>Entrepreneurship intention (Chen et al., 1998, [70]; Liñán et al., 2009, [71]; <math>\alpha = 0.971</math>)</b>					
E_Inten._1	“I am ready to do anything to be an entrepreneur ”	5.05	1.40	−0.17	−0.92
E_Inten._2	“My professional goal is to become an entrepreneur ”	4.99	1.43	−0.24	−0.65
E_Inten._3	“I will make every effort to start and run my own firm”	4.96	1.42	−0.20	−0.66
E_Inten._4	“I am determined to create a firm in the future”	4.95	1.35	−0.10	−0.83
E_Inten._5	“I have very seriously thought of starting a firm”	4.92	1.40	−0.07	−0.97
E_Inten._6	“I have the firm intention to start a firm some day”	4.96	1.36	−0.09	−0.85
<b>Theory of planned behaviour</b>					
<b>Personal Attitude (Ajzen, 2011, [72], <math>\alpha = 0.954</math>)</b>					
PA_1	“Being an entrepreneur implies more advantages than disadvantages to me”	4.36	1.18	−0.11	−0.02
PA_2	“A career as entrepreneur is attractive for me”	4.34	1.15	−0.18	0.01
PA_3	“If I had the opportunity and resources, I’d like to start a firm”	4.37	1.14	−0.09	−0.12
PA_4	“Being an entrepreneur would entail great satisfactions for me”	4.38	1.04	0.30	−0.63
PA_5	“Among various options, I would rather be an entrepreneur”	4.38	1.03	0.28	−0.65
<b>Subjective Norms (Ajzen, 2011, [72], <math>\alpha = 0.975</math>)</b>					
“If you decided to create a firm, would people in your close environment approve of that decision? Indicate from 1 (total disapproval) to 7 (total approval)					
SN_1	“Your close family”	5.39	1.32	−1.04	0.84
SN_2	“Your friends”	5.40	1.24	−1.03	1.07
SN_3	“Your colleagues”	5.40	1.23	−1.03	1.16
<b>Perceived behaviour control (Ajzen, 2011, [72], <math>\alpha = 0.982</math>)</b>					
PBC_1	“To start a firm and keep it working would be easy for me”	4.93	1.41	−0.30	−0.75
PBC_2	“I am prepared to start a viable firm”	4.92	1.43	−0.40	−0.48
PBC_3	“I can control the creation process of a new firm”	4.87	1.42	−0.41	−0.39
PBC_4	“I know the necessary practical details to start a firm”	4.92	1.41	−0.30	−0.75
PBC_5	“I know how to develop an entrepreneurial project”	4.94	1.37	−0.26	−0.74
PBC_6	“If I tried to start a firm, I would have a high probability of success”	4.90	1.23	−0.14	−0.99

#### 4.2. Confirmatory Factor Analysis (CFA) Convergent and Discriminant Validity

To test the convergent and discriminant validity, all five dimensions that were employed to construct the current study scale along with its related reflective measures were subjected to CFA to form a first-order model in Amos graphics with the maximum likelihood (MLE) estimation method. To determine whether or not the model was a good fit



Table 2. Cont.

Factors and Variables	S. Loading	CR	AVE	MSV	1	2	3	4	5
<b>4. Subjective Norms</b>		0.975	0.929	0.260	0.51	0.44	0.29	<b>0.96</b>	
SN_1	0.953								
SN_2	0.967								
SN_3	0.971								
<b>5. Perceived behaviour control</b>		0.979	0.886	0.282	0.42	0.370	0.53	<b>0.53</b>	<b>0.94</b>
PBC_1	0.969								
PBC_2	0.894								
PBC_3	0.958								
PBC_4	0.978								
PBC_5	0.862								
PBC_6	0.980								
<b>Correlations</b>					<b>Estimates</b>				
University education support	<->	Subjective norms			0.51	***			
University education support	<->	Perceived behavioral control			0.42	***			
Entrepreneurial intention	<->	University education support			0.26	***			
Personal attitude	<->	Subjective norms			0.29	***			
Personal attitude	<->	Perceived behavioral control			0.36	***			
Entrepreneurial intention	<->	Personal attitude			0.34	***			
Subjective norms	<->	Perceived behavioral control			0.35	***			
Entrepreneurial intention	<->	Subjective norms			0.44	***			
Entrepreneurial intention	<->	Perceived behavioral control			0.53	***			
University education support	<->	Personal Attitude			0.39	***			

Model GoF: “( $\chi^2(242, N = 390) = 1025.354, p < 0.001$ , normed  $\chi^2 = 4.237$ , RMSEA = 0.052, SRMR = 0.0341, CFI = 0.930, TLI = 0.932, NFI = 0.939, PCFI = 0.786 and PNFI = 0.757)”. “Note: CR: composite reliability; AVE: average variance extracted; MSV: maximum shared value; Bold diagonal values: the square root of AVE for each dimension; below diagonal values: intercorrelation between dimensions”. \*\*\*: significant level less than 0.001.

The CFA results also demonstrated two additional indicators that confirm the convergent validity of the employed scale: First, as shown in Table 2, all estimates for loadings were greater than 0.90 with a  $p$ -value of less than 0.001 [76]. Second, all five measures used had average variance extracted (AVE) scores higher than the minimum criteria (0.50) to prove convergent validity [75]: university entrepreneurship education support (0.922), entrepreneurship intention (0.872), personal attitude (0.810), subjective norms (0.929), and perceived behavior control (0.886). In addition, as proposed by [75–78], the CFA results provide two pieces of evidence that secure the discriminant validity of the study measures. First, maximum shared variance (MSV) values should not exceed average variance estimates (AVE) values, as shown in Table 2. Second, Table 2 depicts the square root scores of the AVE values for the study’s five measures; for adequate discriminant validity, these scores should be greater than the intercorrelation scores (data located below the bold diagonal scores).

#### 4.3. Structural Model Results

In this study, we used a two-pronged confirmatory approach. First, the study’s model was conceptualized through a thorough literature review; second, primary data were

obtained to decide whether or not they were consistent with the conceptual model [76]. The conditions that determined whether the conceptual model should be approved were based on the model's ability to meet a model fit criterion (i.e., RMSEA, CFI, TLI, PCFI). The GoF indices showed evidence that the model completely fit the primary data:  $\chi^2$  (254, N = 390) = 1087.882,  $p < 0.001$ , normed  $\chi^2 = 4.823$ , RMSEA = 0.067, SRMR = 0.0415, CFI = 0.943, TLI = 0.939, NFI = 0.925, PCFI = 0.723 and PNFI = 0.697 (as showed in Table 3). Once a good enough fit was found, the study's hypotheses could be evaluated. Each of the hypotheses are represented by a separate path.

**Table 3.** Results of the study model.

	Hypotheses		Beta ( $\beta$ )	C-R (t-Value)	R <sup>2</sup>	Results of Hypotheses
H1	University education support	→	Entrepreneurship intention	0.23 **	2.352	Supported
H2	University education support	→	Subjective norms	0.51 ***	12.024	
H3	University education support	→	Personal attitude	0.38 ***	8.421	Supported
H4	University education support	→	Perceived behavioral control	0.39 ***	8.624	Supported
H5	Subjective norms	→	Entrepreneurship intention	0.53 ***	12.327	
H6	Personal attitude	→	Entrepreneurship intention	0.37 ***	7.987	Supported
H7	Perceived behavioral control	→	Entrepreneurship intention	0.55 ***	12.987	Supported
H8	University education support → Subjective norms → Entrepreneurship intention			Path 1: $\beta = 0.51$ *** $t$ -value = 12.024 Path 2: $\beta = 0.53$ *** $t$ -value = 12.327		Supported
H9	University education support → Personal attitude → Entrepreneurship intention			Path 1: $\beta = 0.38$ *** $t$ -value = 8.421 Path 2: $\beta = 0.37$ *** $t$ -value = 7.987		Supported
H10	University education support → Perceived behavioral control → Entrepreneurship intention			Path 1: $\beta = 0.39$ *** $t$ -value = 8.624 Path 2: $\beta = 0.55$ *** $t$ -value = 12.987		Supported
Entrepreneurship intention					0.73	

"Model GoF:  $\chi^2$  (254, N = 390) = 1087.882,  $p < 0.001$ , normed  $\chi^2 = 4.823$ , RMSEA = 0.067, SRMR = 0.0415, CFI = 0.943, TLI = 0.939, NFI = 0.925, PCFI = 0.723 and PNFI = 0.697; \*\*: significant level less than 0.01. \*\*\*: significant level less than 0.001".

The study's ten hypotheses are displayed in Table 3, with seven being direct and three being indirect. The SEM results showed that university entrepreneurship education support has a positive and significant impact on entrepreneurship intention ( $\beta = 0.23$ ,  $t$ -value = 2.352,  $p < 0.01$ ); subjective norms ( $\beta = 0.51$ ,  $t$ -value = 12.024,  $p < 0.001$ ); personal attitude ( $\beta = 0.38$ ,  $t$ -value = 8.421,  $p < 0.001$ ); and perceived behavior control ( $\beta = 0.39$ ,  $t$ -value = 8.624,  $p < 0.001$ ). Hence, hypotheses H1, H2, H3, and H4 were supported. The SEM findings were comparable in that they indicated that subjective norms positively and significantly influence entrepreneurship intention ( $\beta = 0.53$ ,  $t$ -value = 12.327,  $p < 0.001$ ); as a result, hypothesis H5 was supported. Similarly, personal attitude was found to have significant and positive effects on entrepreneurship intention ( $\beta = 0.37$ ,  $t$ -value = 7.987,  $p < 0.001$ ), and therefore hypothesis H6 was confirmed. Furthermore, perceived behavior control was found to have significant and positive effects on entrepreneurship intention ( $\beta = 0.55$ ,  $t$ -value = 12.987,  $p < 0.001$ ), supporting hypothesis H7.

Finally, the SEM statistics show evidence for the mediation impacts of the three dimensions of planned behavior theory (subjective norms, personal attitude, and perceived behavior control) in the relationships between entrepreneurship education support and entrepreneurship intention. All of the standardized estimates (whether direct or indirect) in the study model as visualized in Figure 2 were found to have a positive and significant value. Therefore, complementary mediation can be inferred as argued by Zhao et al. [79], thus

hypotheses H8, H9, and H10 are supported. Additionally, the SEM statistics provided more signs that support the mediation effects of subjective norms, personal attitude, and perceived behavior control in the relationships between entrepreneurship education support and entrepreneurship intention, as the positive direct significant effect of entrepreneurship education support on entrepreneurship intention was improved from ( $\beta = 0.23$   $p > 0.01$ ) to a total effect size of 0.51 through subjective norm; to a total effect size of 0.40 through personal attitude; and to a total effect size of 0.47 through perceived behavior control [73]. Table 3 also revealed that the explanatory predictive power ( $R^2$ ) of all estimates ( $R^2 = 0.73$ ) explained 73% of the variance in entrepreneurship intention.

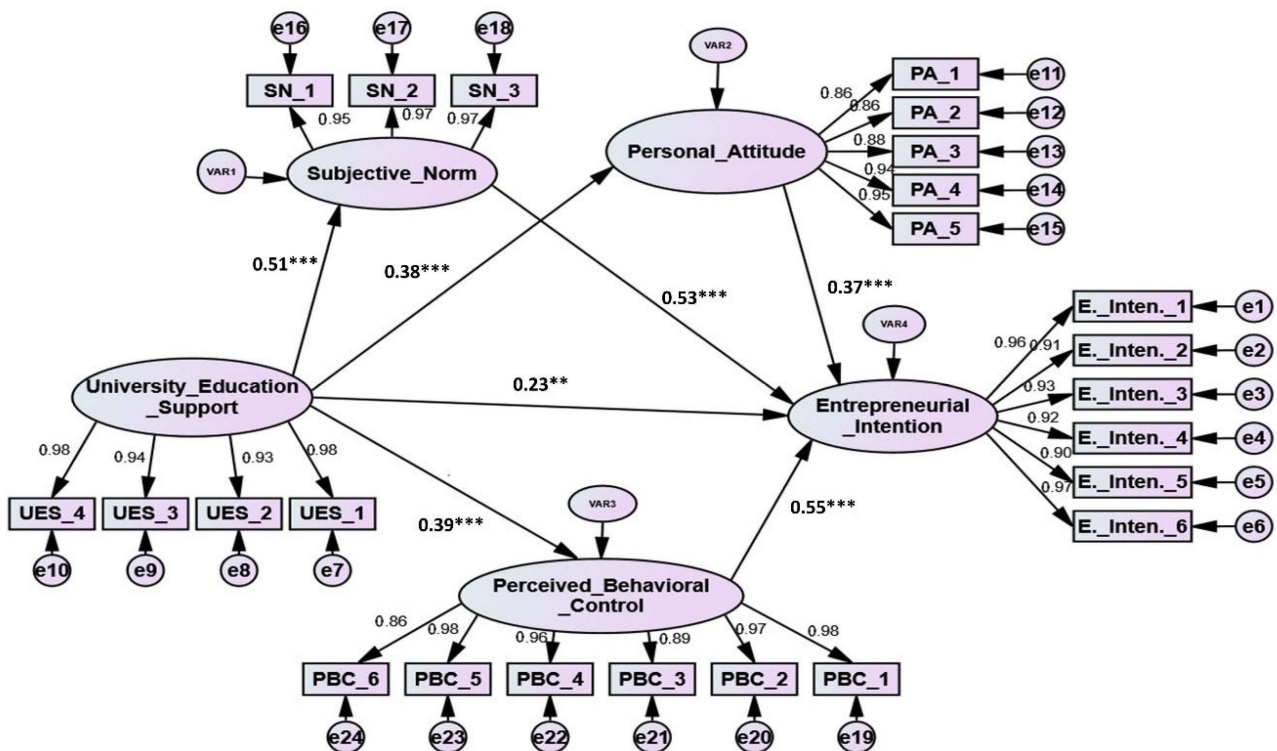


Figure 2. The Study structural model. \*\*\*: significant level less than 0.001.

## 5. Discussion and Implications

The research examined the direct impact of university education support on entrepreneurship intention and the indirect impact through the constructs of TPB: subjective norms, personal attitude and perceived behavioral control. The results of the research supported all hypothesized direct and indirect relationships. The results revealed that university education support has a positive and significant impact on entrepreneurship intention. This result is inconsistent with earlier studies (e.g., [2,34–36] that found that education influences students' career paths, and has a major long-term impact on their entrepreneurial mentality. The results support the work of Shah et al. [38], who asserted that there is a positive relationship between university support and students' intention to be entrepreneurs. It also indicates that entrepreneurial education has a crucial role to play in promoting students' level of intention to start their own businesses [40].

The results also showed that university education support has a positive and significant impact on subjective norms. It is argued that the university's support for entrepreneurship through education and development programs confirms that the leadership will have a high expectations of university students in terms of entrepreneurship and starting up their own businesses [18]. This also means that students affect the decision of each other and they are all affected by university education support. University education support was found to also have positive and significant effects on personal attitude and perceived

behavior control. This means that students will view entrepreneurship favorably if they believe it to be easy [50], which can be achieved through university support. Universities that provide students with appropriate knowledge and drive for entrepreneurship will affect the attitude of students and increase the probability of being involved in new businesses [44].

The results supported the assumption of the TPB framework [17] by confirming that the three constructs of TPB: subjective norms, perceived behavioral control, and attitude have significant positive effects on entrepreneurship intention. The results are inconsistent with previous studies, which found that subjective norms positively affect entrepreneurial intention [32], perceived behavior control positively affects entrepreneurship intention [63,80], and personal attitude positively affects entrepreneurship intention [6]. The results confirmed the complimentary mediation effects of subjective norms, personal attitude, and perceived behavior control on the relationships between entrepreneurship education support and entrepreneurship intention.

The results have some implications for scholars. The results confirmed a direct and indirect impact of university education support on students' entrepreneurship intentions. Hence, university education support is one of the main factors that could contribute directly and indirectly to entrepreneurship intentions. Researchers should also make more of an effort to understand the role of TPB constructs, since they play a positive mediating effect on the relationship between university education support entrepreneurial intentions. This means that the three constructs have the ability to enhance the effect of university education support on entrepreneurship intentions [81]. Both scholars and policymakers in higher education should place more emphasis and attention on the role of these three constructs for ensuring successful entrepreneurship practices. Hence, they have to make an effort to understand how to make entrepreneurship attractive to students. Attention should also be paid to support from family, friends and colleagues, since these factors shape students' subjective norms and ultimately their entrepreneurship intention.

Policymakers have also to pay greater attention to university entrepreneurship education and support for entrepreneurship. They should offer different courses on entrepreneurship, i.e., entrepreneurship principles, to all university students. They also have to motivate their students to run their own businesses and provide them with students with the finances and policies to start their businesses. Students should have clear goals to become an entrepreneur, start their own business and have to be able to control the entrepreneurship process and projects. Hence, training and development programs are essential and should be provided by the university to equip students with these skills. Furthermore, the university leaders should also establish a supporting center or unit in each university to give the required financial support for students with regard to entrepreneurship [82]. These supporting centers should provide advice for students on policy as well as training programs on how to develop and run their new businesses. These centers or units have to be proactive and develop a strategic plan for promoting entrepreneurship concepts and values among higher education students. The promotion of entrepreneurship intention among higher education students through education support will definitely help in spreading the culture of entrepreneurship in society. This will have positive economic and social consequences which will also contribute to the Saudi Vision 2030.

## 6. Conclusions

The current study examined the impact of university education support on entrepreneurship orientation and entrepreneurship intention through the lens of TPB. The results revealed a direct effect of university education support on entrepreneurship intention and an indirect effect through entrepreneurship orientation, which was examined using the three constructs of TPB: subjective norms, personal attitude and perceived behavioural control. The constructs of TPB had a complimentary mediation effect on the relationships between entrepreneurship education support and entrepreneurship intention. These results reflect the importance of paying more attention to the role of entrepreneurship education sup-

port and three constructs of TPB to drive university students' entrepreneurship intentions. Hence, this contributes to economic and social development as well as the national agenda.

The study employed the TPB framework to understand the effects of entrepreneurship orientation on entrepreneurship intention among higher education students in the KSA. Like many other studies on social science, the study was undertaken on students in a university in the KSA, King Faisal University. Therefore, the results of the study have to be examined further before generalization to other universities in the KSA or in other countries. Because there are fundamental differences between small and medium enterprises (SMEs) and large businesses [83], the study can be replicated, and the results can be compared to either verify or refute the findings of the current study. Other studies could also consider large enterprises and other factors such as the role of the supporting centers and business incubation at the universities in promoting entrepreneurship intention among graduates.

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