

Does the entrepreneur intention vary among university students?

Intention vary
among
university
students

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Abstract

Purpose – To encourage entrepreneurship, which accelerates economic growth by increasing employment opportunities and competitiveness, stakeholders must conduct studies and develop policies that consider both the current situation and future expectations. This study aims to examine the environmental and personal factors that influence students' entrepreneurial intentions (EIs), using a model based on the theory of planned behaviour (TPB) and social cognitive theories (SCT).

Design/methodology/approach – This study proposed an institutional framework demonstrating contextual features to achieve this objective. This theoretical framework is evaluated using a sample of 375 university students in Türkiye.

Findings – The empirical findings can help policymakers develop effective policies to encourage entrepreneurship.

Research limitations/implications – The study focuses on EIs; it is possible that even if a participant indicated a high EI in the survey, they will ultimately pursue a completely different career path.

Practical implications – The study also contributes to entrepreneurship literature studies investigating the relationships between the TPB and SCT.

Social implications – By testing specific hypotheses for Türkiye, this study contributes to the demand for entrepreneurship research in countries that are major global players but have vastly different sociocultural contexts than Western countries.

Originality/value – The study draws a theoretical model that explains the factors affecting the EIs of university students and attempts to explain the EIs of university students with and without business education within this model.

Keywords Business education, University student, Entrepreneur intention

Paper type Research paper



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1. Introduction

Today, as a result of the high number of graduates produced by universities each year, the unemployment rate among university graduate students is increasing, and is considered as one of the main challenges confronting many developing countries such as Türkiye (Bağış *et al.*, 2022). This issue encourages policymakers and government officials to raise awareness about the value of university education and how recent graduates can be integrated into economic life (Che Nawi *et al.*, 2022).

Although a higher number of young people are pursuing higher education, many young graduates cannot find a job owing to an uncoordinated labour market and education system (Draksler and Sirec, 2021). Therefore, helping new graduates enter the labour market by guiding and developing their competencies (Cheraghi and Schött, 2015) plays a vital role in the economic growth of developing countries (Samydevan *et al.*, 2021).

The objective is to encourage entrepreneurial activity, especially among disadvantaged young people (Draksler and Sirec, 2021). The global entrepreneurship monitor (Bosma *et al.*, 2020) and the European Commission (2016) recommend that educational institutions organize their curricula according to the abilities that enable young people to seize and benefit from opportunities. Entrepreneurship education is considered the most important regional development strategic tool (Galvão *et al.*, 2020). It is crucial for developing countries to encourage entrepreneurial activities, especially among young people, and to develop their entrepreneurial intentions (EIs) (Anwar *et al.*, 2022). As an educational resource, universities are the most important institutions that promote the EIs of the young population (Pérez-Pérez *et al.*, 2021).

Existing research suggests that investigating students' personal and situational characteristics is crucial to understanding students' EIs (Liguori *et al.*, 2018). However EIs of students differ even under the same situational conditions (Frese, 2009; Liguori *et al.*, 2018). Understanding entrepreneurial behaviour in variables other than personal and environmental differences should be included in theoretical models (Maslakçı *et al.*, 2021; Bae *et al.*, 2014).

Personal and environmental factors influence entrepreneurship by shaping EIs, and Ajzen's (1991) theory of planned behaviour (TPB), which consists of attitude towards behaviour, subjective norms and perceived behavioural control, is used to explain EI. It shows the model that best explains it with a three-dimensional framework (Kautonen *et al.*, 2013). However, TPB's linear treatment of EIs (Neck and Greene, 2011) makes it challenging to explain reciprocal and regulatory relationships (Liguori *et al.*, 2018); social cognitive approaches help understand these relationships (Liguori *et al.*, 2018).

There is a need to explore the determinants of students' EI (Martins *et al.*, 2022; Samydevan *et al.*, 2021; Maslakçı *et al.*, 2021; Boubker *et al.*, 2021) to add the social cognitive career theory – based on social cognitive theory (SCT) – to the theoretical framework based on TPB, as stated by Liguori *et al.* (2018), to understand non-linear and bi-directional relationships.

Based on the TPB-based model and social cognitive career theory, this study will explain the individual and contextual factors affecting university students' EIs. Previous studies show that university entrepreneurship education programs are growing rapidly and globally (Kuratko, 2005; Solomon, 2007). However, the impact of these training programs on EI remains unclear (Draksler and Sirec, 2021; Nabi *et al.*, 2017). Nabi *et al.* (2017) show that entrepreneurship education has positive and negative results on EI, and it is emphasized that very few studies focus on entrepreneurship education given at universities.

This study has three significant contributions to the EI studies on students. Firstly, we determine the effects of various personality traits and environmental factors on EIs by using a comprehensive model. Evidently, there is a need for comprehensive studies on the EI of

university students (Tan *et al.*, 2021). Secondly, this study proposes a more robust, theory-based framework to assess the impact of entrepreneurship education delivered at universities (Sancho *et al.*, 2022; Herman and Stefanescu, 2017; Adekiya and Ibrahim, 2016; Baptista and Naia, 2015; Neergaard *et al.*, 2020).

Thirdly, this research tests the possible differentiating role of a university major on the antecedents of EI. Previous studies have shown that taking entrepreneurship courses (Carpenter and Wilson, 2022) and studying business administration (Ababtain and Akinwale, 2019) can positively affect students' EIs. However, only a few studies have examined a university major's impact on EIs (Draksler and Sirec, 2021; Zhang and Cain, 2017). Draksler and Sirec (2021) emphasize the necessity and importance of testing such studies with different contexts and models. Thus, this study aims to comprehensively address the factors affecting students' EI, including many individual and contextual factors, which can offer different policy options to higher education policymakers.

The remainder of the work is structured as follows. The next section (Section 2) presents a theoretical framework and previous work supporting the hypotheses; Section 3 describes the research design, method and data; Section 4 provides the results; and Section 5 discusses the findings and theoretical and practical implications.

2. Literature review and hypothesis development

2.1 Entrepreneurial intention of university students

Entrepreneurship can take two forms: actual (individuals who start and run a business) or intended/latent (individuals who intend to start a business) (Pihie and Bagheri, 2010). In this context, intended entrepreneurship is the state of mind consciously adopting a specific purpose or path. EI is the conscious display of the individual's intention to establish their own business. The fact that many entrepreneurial moves occur due to an intention shows a significant relationship between intention and being an entrepreneur (Fatoki and Chindoga, 2011). EI or potential is a mental process that directs an individual's tendency to make entrepreneurial efforts towards establishing their own business (Krueger and Carsrud, 1993) and, thus, the individual's development and implementation of his or her business plan (Gupta and Bhawe, 2007).

Identifying the antecedents of university students' EIs is problematic as it relates to their future-oriented decision to start a new business (Fitzsimmons and Douglas, 2011; De Clercq *et al.*, 2013; Phuong *et al.*, 2021). In higher education, EI is recognized as essential in contributing to students' tendencies to initiate and create new business ventures and opportunities after graduation (Mahendra *et al.*, 2017). "Entrepreneurial intent" (De Clercq *et al.*, 2013; Doran *et al.*, 2018), defined as the desire to carry out productive activities to guide individuals to adopt and implement new business-related concepts, is one of the most important predictors of entrepreneurial tendency (Badri and Hachicha, 2019). Intention, influencing students' future behaviour, is cultivated and developed through education (Wu and Wu, 2008).

Extant literature shows that entrepreneurship education would facilitate EIs and behaviours, develop entrepreneurial abilities and provide skills that individuals will need throughout their lives as entrepreneurs (Gartner and Vesper, 1994). There is a clear link between entrepreneurship education and entrepreneurial activity (Paray and Kumar, 2020). Bae *et al.* (2014) reveal a significant difference between EI and entrepreneurship education in their meta-analysis study. However, the impact of entrepreneurship education programs taught at universities and higher education institutions still needs to be explored (Paray and Kumar, 2020).

Entrepreneurship education given in universities can positively change the attitudes of individuals, as well as trigger people to choose entrepreneurship as a career with the imparted technical and psychological knowledge and skills (Martins *et al.*, 2022). Depending on the positive attributes of entrepreneurship education, the number of universities providing entrepreneurship education has grown significantly worldwide in recent years (Tiberius and Weyland, 2022).

Entrepreneurship education is primarily attached to business schools. Many business students take entrepreneurship courses as compulsory or elective courses during higher education. Gürol and Atsan (2006) reviewed the curricula of business schools in 53 states and 23 private universities in Türkiye, and found that 15 state universities had elective entrepreneurship courses in their undergraduate curricula, whereas 7 private universities offered entrepreneurship graduate programs. Furthermore, entrepreneurship course was compulsory in four private universities, and nine state universities and four private universities offer elective courses on entrepreneurship as part of their MBA programmes.

Gulzar and Fayaz (2023) show that entrepreneurship education is the most important factor affecting entrepreneurship in India. The notion that entrepreneurship education positively predicts the EI of students has been supported by some studies in different countries. For example, Draksler and Sirec (2021) find that entrepreneurship education positively affects EI in Slovenia; Ndofirepi and Rambe (2017) suggest that there is a significant relationship between entrepreneurship education among Zimbabwean students and students' intentions to participate in entrepreneurship. Gerba (2012) in Ethiopia, Ahmed *et al.* (2014) and Adelaja (2021) argue in their study in the Malaysian context that business administration students who study entrepreneurship education have higher EIs. Sahputri *et al.* (2023) state that the effect of entrepreneurship education on EI works through different factors such as perceived family support and entrepreneurial experience in Indonesia.

This reveals that much still needs to be done to understand how EI in the developing world, especially in developing countries, is affected by entrepreneurship education provided at universities (Paray and Kumar, 2020).

2.1.1 Theory of planned behaviour, entrepreneurial intention and entrepreneurship education. The theoretical framework of the study is based on the planned behaviour model, which is the most frequently used model to understand the relationship between education and intention (Ajzen, 1991; Schlaegel and Koenig, 2014; Krueger *et al.*, 2000; Zhang and Cain, 2017). It states that an individual's future behaviour results from their intentions or that stronger intentions lead to substantial behavioural commitment in certain situations. Ajzen (1991) stated that social norms influence individuals' EIs in TPB, their thoughts about others' plans and their perspectives on realizing or avoiding a particular intention. Perceived behavioural control involves the subjective evaluation of a person's ability and the ease or difficulty of performing a particular behaviour (Ajzen, 1991). Perceived behavioural control shapes intentions and leads to a collective influence on behaviour.

In TPB, intention shows the effort individuals are ready to make to perform a behaviour (Cater *et al.*, 2022). Generally, the greater the intention to engage in a behaviour, the higher the probability of that behaviour being performed (Cater *et al.*, 2022). In this context, attending events and networking through entrepreneurship clubs, associations and other academic workshops and conferences are crucial for encouraging ideas (Seun *et al.*, 2024). University entrepreneurship training positively affects students' EIs and increases their engagement in entrepreneurial behaviour (Maşlakçı *et al.*, 2021). However, recent studies emphasize that the TPB should be tested to determine whether it is valid in different contexts and other external conditions (Cater *et al.*, 2022; Whitmarsh *et al.*, 2018).

2.1.2 Individual factors. People with entrepreneurial behaviour must be able to make decisions and not give up easily on achieving their objectives. In psychological terms, this ability is defined as the need for achievement (Akhtar *et al.*, 2020). Soomro and Shah (2021) found that the need for achievement plays an essential role in developing EIs and is also a significant factor in assisting new entrepreneurs in overcoming the significant obstacles they will face.

Another feature that affects EIs is the *locus* of control (LOC) (Rauch and Frese, 2007), defined as the individual's "perceived state" (Uysal *et al.*, 2021). LOC categorizes individuals as internal or external based on their influence over their lives and interactions with these events (Uysal *et al.*, 2021). The TPB posits that an individual's beliefs regarding control over outcomes positively affect their EI. Individuals who believe they can affect the results of their actions through their efforts and abilities have a high internal LOC with the likelihood of engaging in entrepreneurial activities (Stewart and Roth, 2007).

Previous studies state that entrepreneurial self-efficacy (ESE) is one of the most influential factors in EIs (Krueger *et al.*, 2000). Numerous studies have confirmed a positive relationship between EI and ESE (e.g. Maslakçi *et al.*, 2021). When university students have confidence in their ability to create a new venture, they are more likely to perform and continue to succeed (Neneh, 2022).

Entrepreneurship requires individuals to exert effort and tolerate risk to be successful (Wu and Knott, 2006). Uncertainty and tolerance for risk are the foundations of entrepreneurship (Hvide and Panos, 2014). Those with a high-risk tolerance are more likely to pursue challenging endeavours like entrepreneurship (Kim and Noh, 2016). Depending on previous literature on the effect of individual factors on entrepreneurship, the following hypotheses are derived:

- H1. The need for achievement positively affects the EIs of students.
- H2. Internal LOC positively affects the EIs of students.
- H3. ESE positively affects the EIs of students.
- H4. Risk tolerance positively affects the EIs of students.

2.1.3 Contextual factors. Recent research demonstrates that access to capital, job knowledge, social support (Neneh, 2022) and the university environment (Omidi Najafabadi *et al.*, 2016) can all be effective on EIs as contextual variables (Hayes *et al.*, 2015). University students know the importance of financial resources for entrepreneurial success, and their perception of risk is contingent on their access to these resources (Aragon-Sanchez *et al.*, 2017). According to the theory of liquidity constraints proposed by Evans and Jovanovic (1989), start-ups require substantial financial capital and must be capitalized through credit markets. Thus, access to capital may positively affect EI.

Athayde (2009) discovered that prior participation in a company program and job-related knowledge positively affect students' attitude towards business. Similarly, Davidsson and Honig (2003) demonstrated that business and entrepreneurship knowledge increase the likelihood of an individual establishing a new enterprise.

Sandhu *et al.* (2011) stated that the most significant barrier to university students' entrepreneurship is a need for more resources due to the absence of social networks. Students' perceptions of risk are negatively impacted by their inability to access social, human and financial resources, which causes them to underestimate their chances of success (Aragon-Sanchez *et al.*, 2017). In reaching these resources, social support developed through their social groups' advice helps prospective entrepreneurs establish and manage their businesses (León *et al.*, 2007). These social support networks provide various professional

and non-professional resources that positively impact new ventures and the EIs of university students (Neneh, 2022).

When students can learn about business in a campus environment that encourages entrepreneurship, their ability to profit from entrepreneurship increases (Keat *et al.*, 2011). Students' EI is positively affected by compulsory and elective courses on entrepreneurship and business (Anjum *et al.*, 2022); thus, university support positively affects students' attitude towards entrepreneurship. Accordingly, the following hypotheses have been developed:

- H5. Access to capital positively affects the EIs of students.
- H6. Business information positively affects the EIs of students.
- H7. Social support positively affects the EIs of students.
- H8. The university environment positively affects the EIs of students.

2.2 *To be or not to be a business student*

Previous studies demonstrate that entrepreneurship education can foster EIs and behaviours, develop entrepreneurial skills and equip individuals with lifelong entrepreneurial competencies (Barnard *et al.*, 2018). Therefore, it is frequently argued that entrepreneurship education should be incorporated into the formal education system, starting from primary education and continuing through secondary and higher education. Entrepreneurship education in universities can positively change individuals' attitudes in this direction and motivate them to choose entrepreneurship by equipping them with the technical and psychological knowledge and skills necessary for success (Martins *et al.*, 2022).

Due to the benefits of entrepreneurship education, the number of universities worldwide that offer entrepreneurship education has increased significantly in recent years (Tiberius and Weyland, 2022). Typically, business schools are associated with entrepreneurship education. Many business students enroll in compulsory or elective entrepreneurship courses during college. Entrepreneurship education bridges the gap between cognitive factors and intentions (Anwar *et al.*, 2022) and positively affects individuals' motivation and EIs (Tomy and Pardede, 2020). Studies show that entrepreneurship education increases the self-confidence of university students, making them feel more secure. According to human capital theory (Becker, 2009) and self-efficacy theory (Chen *et al.*, 1998), entrepreneurship education is the most crucial predictor of EI (Anwar *et al.*, 2022).

A 2012 European Commission report based on a large sample of 2,582 students from nine higher education institutions in nine different European countries revealed that graduates with a background in entrepreneurship and business are more inclined to become entrepreneurs (EC, 2012). Ababtain and Akinwale (2019) concluded that entrepreneurship education at the university level, particularly in business majors, significantly impacts EI. Moreover, Colombo and Grilli (2005) found that those with an education in economics and management have greater EI than those educated in other disciplines.

Herman and Stefanescu (2017) demonstrated that the positive effect of entrepreneurship education on EI was stronger among business students than students from other departments. Meanwhile, the existing literature shows that education has a positive and significant effect on EI, that entrepreneurship education can alter student attitudes and increase EIs, and that business department programs positively affect the EIs of higher education students (Letsoalo and Rankhumise, 2020; EC, 2012). This leads us to the following hypothesis:

H9. The impact of contextual and individual factors on EIs varies for business and non-business students.

Intention vary among university students

3. Methodology

3.1 Procedure and sample

This study used a cross-sectional and quantitative design. The research was conducted on Turkish university students. This was accomplished by obtaining permission from university administrators and explaining the purpose of the research to them. During class hours, surveys were administered to students selected using convenience sampling. Each survey lasted an average of 10 min. A total of 400 questionnaires were distributed to 4 universities in Ankara, Türkiye, 2 of which are public and 2 of which are foundation universities. The purpose of the survey was explained to the students before the survey delivery; they were asked if they were willing to participate in the study by taking volunteer consent.

The statements in the questionnaires were in the local language, Turkish. As the original language of the scales is English, the items in the scales were translated into Turkish by applying the translation and back-translation method. To reach more participants, the data collection period was intentionally kept long, it was from 01 May 2022 to 30 May 2022. Of the 400 questionnaires, 25 were excluded because they were either incorrectly filled or the respondents did not respond to at least 50% of the questions, as Byrne (2013) suggested. Therefore, 375 valid questionnaires were used to conduct the research. Table 1 presents the demographic characteristics of the participants.

Examining the participants' demographic characteristics reveals that most students had never participated in any entrepreneurship course before and that only a few had previous work experience.

3.2 Scales

EIs. The students' EIs were assessed by adapting the six-item scale developed by Liñán and Chen (2009). Each response was based on a seven-point Likert scale ranging from "1 = almost never" to "7 = almost always". The scale was designed as a unidimensional measure, and higher scores indicate more robust EIs. For example, two items are "Starting a new business as an entrepreneur gives me great satisfaction" and "I prefer to be an entrepreneur among many options".

Content	Business		Major Non-business		Total	
	Frequency	%	Frequency	%	Frequency	%
<i>Gender</i>						
Female	77	45.6	104	50.5	181	48.3
Male	92	54.4	102	49.5	194	51.7
<i>Ent. course</i>						
Yes	76	48.4	29	14.6	105	29.5
No	81	51.6	170	85.4	251	70.5
<i>Job experience</i>						
Yes	28	16.8	22	10.7	50	13.4
No	139	83.2	183	89.3	322	86.6

Source: Authors' own creation/work

Table 1. Demographic characteristics of the participants by major

Individual factors. The need for achievement, LOC, ESE and risk tolerance influenced students' EIs. The need for achievement (eight items: sample item "I create additional responsibilities for myself in the tasks assigned to me"), internal LOC (four items: sample item "I am more in control of events than luck") and risk tolerance (four items: sample item "I can make the right decisions in uncertain and risky situations") were assessed with scales adapted from [Liñán and Chen \(2009\)](#). Moreover, students' ESE was evaluated using the scale developed by [Cox et al. \(2002\)](#). This nine-item scale includes statements such as "I can seize opportunities in the market for new products and services" and "I can react quickly to unexpected situations". All scales are one-dimensional, with responses ranging from "1 = rarely" to "7 = almost always" on a seven-point Likert scale. Higher scores indicate a greater propensity for the factor in question.

Contextual factors. Access to capital, business information, social support and college education were assessed as contextual factors. Access to capital (three items: sample item: "I have access to capital to become an entrepreneur") and business information (three items: sample item: "I have access to supporting information to begin being an entrepreneur") were assessed using scales adapted from [Kristiansen and Indarti \(2004\)](#), while the social support scale (eight items) was taken from [Sequeira et al. \(2007\)](#). One question was used to operationalize social support: "If you decide to start your own business, to what extent do the following individuals/actors support your decision?" Family (mother, father, brother and sister), close relatives (uncle and aunt), close friends, other relatives (cousin, sister-in-law and brother-in-law), associates (possible in the future), bankers, banks and private or public agencies were among the eight possible responses. High scores indicate an abundance of social support. The impact of university education was measured with the four-item scale adapted from [Schwarz et al. \(2009\)](#). A sample item is "The education I received at university allows me to see opportunities in the market". All the items are measured with a seven-point Likert scale (1 = almost never; 7 = almost always) in which a high score indicates a high orientation on the given factor.

4. Results

4.1 Testing validity and reliability

Before testing the hypotheses, we examined the validity and reliability of the measurement model. We computed the factor loadings and average variance extracted (AVE) scores for each scale to assess the convergent validity. [Fornell and Larcker \(1981\)](#) stated that AVE values greater than 0.5 indicate convergent validity. As demonstrated in [Table 2](#), the AVE values of the variables greater than 0.5, indicating convergent validity. In addition, [Hair et al. \(2009\)](#) stated that structures have discriminant validity if the square root of the AVE value is greater than the correlation coefficient between variables. The results of this study indicate that the square roots of the AVE values of the variables are more significant than the correlation coefficients between structures.

The results of the validity analysis demonstrate that the measurement model's variables possess both convergent and discriminant validity. Cronbach's alpha and composite reliability (CR) were used to assess the variables' reliability and internal consistency. Cronbach's alpha values range from 0.694 to 0.931, and CR values range from 0.749 to 0.960 ([Table 2](#)). The lower threshold for these values is 0.7; hence, the model's variables are reliable and have internal consistency ([Hair et al., 2009](#)).

4.2 Correlations

[Table 3](#) demonstrates the means, standard deviations and Pearson's correlation coefficients for the variables included in the study according to the majors of the

Table 2. Results of validity and reliability analyses

Factor	No. of items	Factor loading intervals	α	CR	AVE
<i>NAch</i>	8	0.609–0.842	0.842	0.898	0.530
<i>LOC</i>	4	0.577–0.918	0.697	0.881	0.655
<i>ESE</i>	9	0.530–0.865	0.901	0.923	0.578
<i>TRisk</i>	4	0.877–0.910	0.694	0.938	0.793
<i>Capital acc.</i>	3	0.617–0.809	0.788	0.749	0.512
<i>Buss. info.</i>	3	0.730–0.860	0.732	0.848	0.652
<i>Social supp.</i>	8	0.571–0.880	0.842	0.929	0.625
<i>Uni. env.</i>	4	0.876–0.927	0.921	0.960	0.617
<i>Ent. int.</i>	6	0.702–0.938	0.931	0.945	0.745

Notes: α = Cronbach's Alpha; CR = composite reliability; AVE = average variance extracted; LOC = locus of control; ESE = entrepreneurial self-efficacy

Source: Authors' own creation/work

Gender	Variable	Mean	SD	1.	2.	3.	4.	5.	6.	7.	8.
Business (n = 169)	<i>NAch</i>	5.82	0.80	1							
	<i>LOC</i>	5.07	1.05	0.49**	1						
	<i>ESE</i>	5.18	1.03	0.57**	0.35**	1					
	<i>TRisk</i>	3.47	0.81	0.20**	0.17*	0.38**	1				
	<i>Capital acc.</i>	5.32	1.56	0.21**	0.16*	0.23**	-0.10	1			
	<i>Buss. info.</i>	6.01	0.92	0.54**	0.34**	0.43**	0.06	0.22**	1		
	<i>Social Supp.</i>	5.44	1.08	0.32**	0.16*	0.31**	0.03	0.30**	0.32**	1	
	<i>Uni. env.</i>	4.59	1.52	0.05	0.09	0.16*	0.02	0.21**	0.10	0.13	1
	<i>Ent. int.</i>	5.04	1.47	0.38**	0.28**	0.53**	0.30**	0.20**	0.33**	0.37**	0.10
Non-business (n = 206)	<i>NAch</i>	5.75	0.86	1							
	<i>LOC</i>	4.96	1.02	0.46**	1						
	<i>ESE</i>	4.98	1.11	0.52**	0.35**	1					
	<i>TRisk</i>	3.39	0.84	0.15*	0.23**	0.46**	1				
	<i>Capital acc.</i>	5.37	1.49	0.24**	0.25**	0.35**	0.07	1			
	<i>Buss. info.</i>	5.93	0.96	0.44**	0.15*	0.23**	-0.04	0.27**	1		
	<i>Social supp.</i>	5.44	0.98	0.32**	0.20**	0.42**	0.17*	0.38**	0.26**	1	
	<i>Uni. env.</i>	3.99	1.55	0.21**	0.20**	0.24**	0.05	0.21**	0.10	0.24**	1
	<i>Ent. int.</i>	4.64	1.63	0.25**	0.28**	0.56**	0.32**	0.17*	0.05	0.35**	0.17**
Total (n = 375)	<i>NAch</i>	5.78	0.83	1							
	<i>LOC</i>	5.01	1.03	0.47**	1						
	<i>ESE</i>	5.07	1.08	0.54**	0.35**	1					
	<i>TRisk</i>	3.42	0.82	0.17**	0.20**	0.43**	1				
	<i>Capital acc.</i>	5.34	1.52	0.23**	0.21**	0.29**	-0.01	1			
	<i>Buss. info.</i>	5.96	0.94	0.48**	0.23**	0.32**	0.00	0.24**	1		
	<i>Social supp.</i>	5.44	1.02	0.32**	0.18**	0.37**	0.11*	0.34**	0.29**	1	
	<i>Uni. env.</i>	4.26	1.56	0.15**	0.16**	0.22**	0.05	0.20**	0.11**	0.18**	1
	<i>Ent. int.</i>	4.82	1.57	0.31**	0.28**	0.55**	0.31**	0.18**	0.17**	0.36**	0.16**

Notes: N = 375; **p < 0.01; *p < 0.05; LOC = locus of control; ESE = entrepreneurial self-efficacy

Source: Authors' own creation/work

Table 3. Means, standard deviations and correlations for major

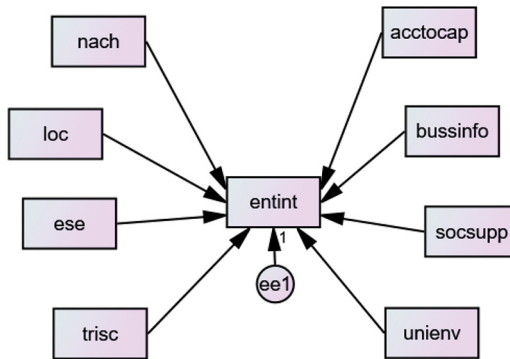
students. The correlations range between $r = 0.20$ and $r = 0.57$. The correlation results indicate a significant relationship between EIs and personal and environmental factors. These observations are shared by both the business and non-business student populations.

4.3 Hypothesis testing

To test the research hypotheses, we followed a two-step procedure. In the first phase, we examined the impact of individual and contextual factors on the EIs of college students. In the second step, we explored whether being a business student affected the relationship between the independent variables and EIs.

We used structural equation modelling (SEM) with AMOS 21 software. SEM was preferred since it is usually used to explain multiple statistical relationships simultaneously through visualization and model validation (Dash and Paul, 2021). Complex models, like the model we test here, can be discussed simply through this technique. Moreover, SEM with AMOS made it easy for us to compare the regression weights of two different groups by applying multigroup analysis. We developed a SEM to examine the impacts of individual and contextual factors on the EIs of university students. In the model, EI was treated as the dependent variable, while individual and contextual factors were treated as the independent variables. AMOS 21.0 was used during testing of the model (Byrne, 2013). The AMOS model is displayed in Figure 1.

The results of the model are presented in Table 4. The findings for the whole student group show that internal LOC ($B = 0.154$, $SE = 0.063$, $CR = 2.445$, $p < 0.05$), ESE ($B = 0.650$, $SE = 0.060$, $CR = 10.778$, $p < 0.05$), tolerance to risk ($B = 0.169$, $SE = 0.079$, $CR = 2.150$,



Source: Authors' own creation/work

Figure 1.
Research model

Variables	Estimate	Entrepreneurial intentions		p-value
		S.E.	C.R.	
Need for achievement	-0.081	0.078	-1.044	0.297
Locus of control	0.154	0.063	2.445	0.015
Entrepreneurial self-efficacy	0.650	0.060	10.778	0.000
Tolerance to risk	0.169	0.079	2.150	0.032
Access to capital	-0.024	0.043	-0.558	0.577
Business information	-0.045	0.069	-0.656	0.512
Social support	0.293	0.064	4.596	0.000
University environment	0.023	0.042	0.555	0.579

Table 4.
Measurement model
results (n = 375)

Notes: SE = standard error; CR = critical ratio
Source: Authors' own creation/work

$p < 0.05$) and social support ($B = 0.293$, $SE = 0.064$, $CR = 4.596$, $p < 0.05$) had significant and positive impacts on the EIs of students, while other individual and contextual factors had no effect. The model has an acceptable fit ($CMIN/DF = 3.827$, $GFI = 0.914$, $CFI = 0.901$, $TLI = 0.897$ and $RMSEA = 0.053$). Thus, $H2$, $H3$, $H4$ and $H7$ are supported, while $H1$, $H5$, $H6$ and $H8$ are not supported.

In the multigroup analyses, we defined the two groups as “business” and “non-business” before testing the model to determine how the independent variables affected the EIs of each group. Table 5 presents the results of the structural models. For students with a business major (business), ESE ($B = 0.482$, $SE = 0.088$, $CR = 5.505$, $p < 0.05$), tolerance-to-risk ($B = 0.275$, $SE = 0.112$, $CR = 2.486$, $p < 0.05$) and social support ($B = 0.279$, $SE = 0.084$, $CR = 3.321$, $p < 0.05$) had positive impacts on EIs, whereas the need for achievement, internal LOC, access to capital, business information and university environment had no effect. For students with a major other than business (non-business), internal LOC ($B = 0.187$, $SE = 0.089$, $CR = 2.110$, $p < 0.05$), ESE ($B = 0.754$, $SE = 0.082$, $CR = 9.235$, $p < 0.05$) and social support ($B = 0.303$, $SE = 0.093$, $CR = 3.267$, $p < 0.05$) positively affected EI; however, other individual and contextual factors had no significant effect. Both models had a satisfactory fit. Thus, these results support the notion that the effects of individual and contextual factors on the EIs of college students differ between business and non-business majors.

We used Ki-square comparison tests to assess the significance of group differences. Using AMOS, we examined the significance of the differences between the path coefficients of the business and non-business groups. Table 5 demonstrates that the differences in path coefficients between the groups for internal LOC, ESE and business information are statistically significant. However, the differences between the groups for other factors are not significant. Therefore, the antecedents of business students’ and non-business students’ EIs are significantly different. The results indicate that $H9$ is supported.

5. Discussion and conclusion

$H1-H4$ tested the impact of individual variables (need for achievement, LOC, ESE and risk tolerance) on the EIs of university students. The tested model indicates that LOC, ESE and risk tolerance are significant individual antecedents of EIs and the most effective factor is ESE. These results are consistent with other studies in that ESE is one of the most important antecedents of EIs (Maslakçi *et al.*, 2021). In their study of university students in Türkiye, Uysal *et al.* (2021) found that entrepreneurial outcome expectations, competence, LOC and social networks influence students’ career decisions and goals. Will or intention primarily

Variables	Business ($n = 169$)				Non-business ($n = 206$)				Difference between groups	
	Est.	S.E.	C.R.	p -value	Est.	S.E.	C.R.	p -value	Ki-Sq.	p -value
<i>Nach</i>	0.020	0.114	0.177	0.859	-0.162	0.105	-1.553	0.120	0.840	0.359
<i>LOC</i>	0.097	0.086	1.129	0.259	0.187	0.089	2.110	0.035	3.172	0.048
<i>ESE</i>	0.482	0.088	5.505	0.000	0.754	0.082	9.235	0.000	3.476	0.036
<i>TRisk</i>	0.275	0.112	2.486	0.014	0.078	0.108	0.726	0.468	0.841	0.359
<i>Access to capital</i>	0.052	0.058	0.890	0.373	-0.081	0.061	-1.335	0.182	1.797	0.180
<i>Buss. info</i>	0.118	0.098	1.196	0.232	-0.137	0.095	-1.449	0.147	4.683	0.028
<i>Social support</i>	0.279	0.084	3.321	0.000	0.303	0.093	3.267	0.001	0.011	0.915
<i>Uni. env.</i>	-0.011	0.060	-0.190	0.850	0.025	0.058	0.420	0.675	0.234	0.629

Notes: SE = standard error; CR = critical ratio

Source: Authors’ own creation/work

Table 5. Multi-group analyses for business/non-business differences in entrepreneurial intention

influences an individual's beliefs about his or her ability to organize and execute a particular action and the expected and unplanned consequences of performing that behaviour (Pérez-Pérez *et al.*, 2021). Thus, students with a high internal LOC and risk tolerance believe that they can influence the results of their actions through their efforts and abilities and that they can pursue their own goals. In this regard, the study's findings provide support for the social learning theory and highlight the importance of ESE, risk tolerance and LOC in influencing EIs in developing countries such as Türkiye, where uncertain environments impose high costs (Naushad and Malik, 2018).

The effects of contextual factors (access to capital, business information, social support and university education, respectively) on the students' EIs were investigated in *H5–H8*, and the results revealed that social support is the only contributing factor. Previous research indicates that individuals' social networks and support, particularly those with entrepreneurial experience, positively affect EIs (Davidsson and Honig, 2003; Aragon-Sanchez *et al.*, 2017). Social support provides students with the resources necessary to develop a business and assists a nascent entrepreneur in developing a business concept. Our findings demonstrate that social support can mitigate the negative impacts of inadequate resources and encourage students to pursue their business ideas.

H9 questioned whether being a business or non-business student influences the antecedents of university students' EIs. For business students, ESE, risk tolerance and social support were significant antecedents of EIs, whereas for non-business students, LOC, ESE and social support were significant antecedents.

The differences between business and non-business students indicate that ESE is the most important predictor of EI for both groups, whereas LOC is the only significant factor for the non-business group. This finding may be associated with the impact of business information. According to the multigroup analyses, business information has a positive effect on the EIs of business students but a negative effect on the EIs of non-business students (although the effects are insignificant, the difference between the groups is significant). Business students can develop their LOC by developing their business knowledge, skills and abilities through business-related coursework. Business students may believe that their future careers are under their control; however, non-business students may believe that their ability to control their professional business life is contingent on chance or other factors due to a lack of knowledge about business life. Business education may develop the LOC of business students in their careers, and LOC may be an embedded factor for business students. This study's conclusion should be tested in future research.

In addition, contrary to previous research findings, the results indicate that the individual and contextual factors of need for achievement, access to capital, university environment and information about the business have no significant impact on students' EIs. The literature demonstrates that access to capital, the university environment and information business are significant precursors to EIs. Although the study's results contradict previous research, it is believed that university students in developing countries such as Türkiye face significant barriers to accessing resources. According to Lüthje and Franke (2003), students' perceptions of contextual factors such as access to capital and the university environment vary based on their perceptions of barriers to entrepreneurship. According to the results of our study, it has been determined that these factors have no effect on EIs, and the reason may be differences in the perceptions of students in a developing country.

Ajzen (1991) stated that the more perceived resources a person has, the fewer obstacles they will anticipate. This will have a positive effect on their EI in the long run (Karimi *et al.*, 2017). When university students perceive unfavourable environmental conditions for

entrepreneurship (e.g. limited credit conditions or limited access to funds), they may develop negative attitude towards starting a business (Karimi *et al.*, 2017; Choi *et al.*, 2017). In their research, Bruton *et al.* (2008) argued that theories explaining EIs for developed economies should have less explanatory power when applied to developing economies. The study's results also highlighted the importance of contextual differences in forming EIs to create new jobs, particularly in developing economies.

As in Türkiye and many developing countries at the time of this study, when uncertainty avoidance is low, individuals may be willing to take more risks than usual, accept the possibility of failure and consequently experience relatively less anxiety when attempting to do something new and uncertain with less business knowledge (Karimi *et al.*, 2017). According to Ozaralli and Rivenburgh (2016), the factors that influence the EIs of American and Turkish university students differ. The insignificant effects of the university environment and business information on the EIs of university students are consistent with the results of a recent study on the determinants of EIs among French students by Alkhalaf *et al.* (2022). Rather than playing a positive role in encouraging entrepreneurship among French students, the entrepreneurial knowledge and university environment play an opposing role, according to the researchers.

Laukkanen (2000) emphasized the possible drawbacks of formal education to promote entrepreneurship and proposed that schools are one of the greatest barriers to the development of EIs because they teach students to be overly analytical, problem-conscious and risk-averse. The finding that the university environment has a negligible impact on the EIs of university students necessitates additional research involving diverse groups.

5.1 Theoretical contribution

By testing specific hypotheses for Türkiye, this study contributes to the demand for entrepreneurship research in countries that are major global players but have vastly different sociocultural contexts than Western countries (Karimi *et al.*, 2017). Based on the TPB framework, the entrepreneurship literature has generally explored the antecedents of EIs. However, TPB gives contextual factors minimal consideration. This research makes a unique contribution to the theory by testing a comprehensive model, as there is a dearth of research in the literature on more comprehensive models that incorporate both individual and contextual factors. In addition, the research validates the model in a developing economy and contributes to the studies of the EIs of university students by extending the literature to diverse economic contexts.

The study also contributes to entrepreneurship literature studies investigating the relationships between TBP and SCT. Within the framework of SCT, the study's findings indicate that the interaction between environmental inputs, personal factors and behavioural factors can influence students' EIs, and that this interaction will lead to behavioural changes in individuals. In this context, the study supports studies that emphasize SCT as a comprehensive framework for examining the actions and consequences of individuals in relation to personal, cognitive, behavioural and environmental factors (Nwosu *et al.*, 2022).

5.2 Managerial implications

Rideout and Gray's (2013) study posed the question of what type of entrepreneurship education provided by whom and at what type of university will affect the EIs of university students and offered policymakers and practitioners with practical implications. The process by which university students choose to become entrepreneurs is deliberate, persuasive and conscious (Nwosu *et al.*, 2022; Sesen, 2013). Therefore, universities should

not limit entrepreneurship courses to business students only; they should also be offered as required or elective courses to students from all disciplines.

All department students should be encouraged to take entrepreneurship courses, and they should be encouraged to participate in applied projects that will increase their self-efficacy. Through seminars and conferences, these students can benefit from the experiences of successful entrepreneurs. Students will, thus, have access to the resources necessary for indirect learning in entrepreneurship and business management. Policymakers must equip universities that play a crucial role in entrepreneurship with the necessary policies and practices to support aspiring entrepreneurs. With these policies and practices, they will be able to aid in the reduction of graduate unemployment, which is regarded as one of the most significant problems facing universities today (Okolie *et al.*, 2019).

On the basis of the study's results, university administrators should consider introducing entrepreneurship courses to enhance students' entrepreneurial abilities. This will raise students' awareness of the importance of emotional, social and cognitive skills for business success and boost their confidence in their abilities (Leiva *et al.*, 2021). In universities, entrepreneurial awareness campaigns should be implemented. Students from other departments should be encouraged to enrol in entrepreneurship courses, as they should not be restricted to business students only. Successful business from outside the department should be invited to serve as role models for students. University administrators should encourage entrepreneurship competitions in all departments to increase student participation in entrepreneurial activities, thereby fostering local and national social and economic development.

5.3 Limitations and suggestions for further research

This study has some limitations that open the door to future research opportunities. While the study focuses on EIs, it is possible that even if a participant indicated a high EI in the survey, they will ultimately pursue a completely different career path. This limitation is regarded as a widespread issue that impacts all studies attempting to identify the factors that influence entrepreneurship (Parvaneh and Korosh, 2011). However, the extended, multidimensional framework used in the research can be applied to many other contexts and cultures for comparison and other purposes.

The participants in the study were students from four different universities in Türkiye, so our findings are most applicable to other higher education students, particularly those in developing countries. Extending this study to other countries, and cultures collecting data from many different universities to be more representative, and examining multicultural groups as future research areas will contribute significantly to the body of knowledge. Despite these limitations, this study provides useful guidance and insights for policymakers and academics who wish to foster an entrepreneurial culture, particularly in developing countries like Türkiye.

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Further reading

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