Factors Affecting Entrepreneurial Intention: a Study of Secondary Technical-Professional Education Students in Chile

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Abstract

Entrepreneurial intention is often considered the key determinant of business creation and the development of entrepreneurial behavior. To date, most studies on the determinants of entrepreneurial intention have collected data from undergraduate or graduate university students. In contrast, the present study addresses this issue at the secondary education level. The primary objective is to test students' entrepreneurial intention between 16 and 18 years in Chile's Secondary Technical-Professional Education programs. For this purpose, we applied a survey to a sample of 2373 students attending four different Technical-Professional Education Centres located in three different regions of this country. Based on the Entrepreneurial Potential Model, we tested the influence of perceived feasibility, perceived desirability, and propensity to act on students' entrepreneurial intention. Applying a well-fitted logistic regression model shows that students with moderate risk propensity are more likely to show entrepreneurial intention. Furthermore, the study observed no association between perceived feasibility nor perceived desirability of a business venture with students' entrepreneurial intention; nor was a relationship found between the propensity to act and students' entrepreneurial intention.

Keywords: Entrepreneurial intention; business creation; entrepreneurial conduct; perceived feasibility; perceived desirability; propensity to act; risk propensity; secondary education.

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Factores que afectan la intención emprendedora: un estudio en estudiantes de educación media técnica profesional en Chile

Resumen
La intención de emprender suele considerarse como el factor clave que determina la creación de empresas y el despliegue de conductas emprendedoras. Hasta la fecha, la mayoría de las investigaciones sobre los determinantes de la intención emprendedora han recogido datos de estudiantes universitarios de pregrado o postgrado. En contraste, el presente estudio aborda este tema en el nivel de la educación secundaria con el objetivo principal de evaluar la intención de emprender de estudiantes de educación secundaria técnico-profesional de entre 16 y 18 años en Chile. Para ello, se aplicó una encuesta a una muestra de 2373 estudiantes que asisten a cuatro centros educativos técnico-profesionales, ubicados en tres regiones diferentes de este país. Sobre la base del Modelo del Potencial Emprendedor, se sometió a prueba la influencia de la factibilidad percibida, deseabilidad percibida y propensión a actuar sobre la intención de emprender de los estudiantes. Los resultados de la aplicación de un modelo de regresión logística muestran que es más probable que los estudiantes con una propensión al riesgo moderada muestren intenciones emprendedoras. Además, el estudio reveló que no existe asociación entre la factibilidad y deseabilidad percibidas y la intención de emprender de los adolescentes. Tampoco se encontró una relación entre esta última y la propensión a actuar.

Palabras clave*:* intención emprendedora; creación de empresa; conducta emprendedora; factibilidad percibida; deseabilidad percibida; propensión a actuar; propensión al riesgo; educación secundaria.

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Fatores que afetam a intenção empreendedora: um estudo em estudantes do Ensino Médio Técnico Profissional no Chile

Resumo
A intenção de empreender é geralmente considerada como o fator chave que determina a criação de empresas e a implantação de comportamentos empreendedores. Até o momento, a maioria das pesquisas sobre os determinantes da intenção empreendedora tem coletado dados de alunos universitários de graduação ou pós-graduação. Em contrapartida, o presente estudo aborda essa questão no Ensino Médio, com o objetivo principal de avaliar a intenção empreendedora de alunos do Ensino Médio Técnico Profissional entre 16 e 18 anos no Chile. Para isso, foi aplicado um questionário a uma amostra de 2.373 alunos que frequentam quatro centros de Ensino Técnico Profissional, localizados em três diferentes regiões desse país. Com base no Modelo de Potencial Empreendedor, testou-se a influência da viabilidade percebida, desejabilidade percebida e propensão a agir na intenção empreendedora dos alunos. Os resultados da aplicação de um modelo de regressão logística mostram que estudantes com propensão moderada ao risco são mais propensos a apresentar intenções empreendedoras. Além disso, o estudo revelou que não há associação entre a viabilidade e desejabilidade percebida e a intenção de empreender dos adolescentes. Também não foi encontrada relação entre esta última e a propensão a agir.

Palavras-chave: intenção empreendedora, criação da empresa, comportamento empreendedor, viabilidade percebida; desejabilidade percebida, propensão a agir, propensão ao risco, Ensino Médio.

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1. Introduction

Entrepreneurial intention represents an individual's motivation to pursue a career as an entrepreneur (Anjum *et al.,* 2022). It indicates the potential or tendency of an individual to start a new business in the future (Bui *et al.*, 2020). Before engaging in a behavior, the first step entails a creative process with new opportunities to exploit (De Clercq, Honig & Martin, 2013; Donaldson, 2019; Kessler & Frank, 2009; Krueger, 2003; 2007). A large number of studies have examined entrepreneurial intention as the key element that determines the intentional creation of an entrepreneurial venture and the development of entrepreneurial behaviors (Bird & Jelinek, 1989; Donaldson, Liñán & Alegre, 2021; Nurdan & Nancy, 2016; Sánchez, 2012; Tran, 2018).

Regarding the current state of research, there is a consensus in the literature on the validity of intentional models for predicting the entrepreneurial drive since intentions are understood as antecedents of actual behavior (Hernández-Sánchez, Sánchez-García & Mayens, 2019). Based on the Theory of Planned Behavior (Ajzen, 1991) and the Entrepreneurial Event Model (Shapero & Sokol, 1982), numerous studies have found that entrepreneurial intention is positively correlated with entrepreneurial perceived feasibility and desirability (Bui *et al.,* 2020; Dao *et al.*, 2021; Liñán, Rodríguez & *Rueda*, 2011; Moriano *et al.*, 2012; Noor & Malek, 2021; Ranga, Jain & Venkateswarlu, 2019; Soomro *et al*., 2020).

Other studies using the Entrepreneurial Potential Model have also found a positive relationship between proactivity and entrepreneurial intention (Krueger, 2000; Krueger & Brazeal, 1994; Garaika, 2019). The vast majority of these studies have collected data from undergraduate or graduate university students (Brüne & Lutz, 2020; Nguyen *et al.*, 2019; Obschonka *et al.*, 2017; Palamida, 2016; Marulanda-Valencia & Valencia-Arias, 2019).

The present study evaluated the entrepreneurial intention of students between 16 and 18 years in the Technical-Professional Education (TPE) programs in Chile. The *Educación Media Técnica-Profesional* —TPE by its abbreviation in English—, one of the leading Technical Vocational Education and Training (TVET) programs in Chile, aims at facilitating students'

early access to the labor market by offering them a wide range of technical careers (Ministerio de Educación de Chile [MINEDUC], 2017).

We focused on this group of students considering they were close to entering the labor market and had a basic notion of entrepreneurship. In fact, in 2016, the Chilean Ministry of Education (MINEDUC) renewed the TPE curriculum with a new course called Entrepreneurship and Employability (E&E). The course offers broad skills and competencies focused on helping students build their professional careers. In addition, E&E also serves as the students' first glance into the option of entrepreneurship (Castillo, 2016). We evaluated entrepreneurial intention only in students who had already taken the E&E course.

The study uses the Entrepreneurial Potential Model (Krueger & Brazeal, 1994) to test the influence of perceived feasibility, perceived desirability, and propensity to act on students' entrepreneurial intention. We hypothesize that, despite the young age of the students, all three elements will be positively associated with entrepreneurial intention. While perceived entrepreneurial feasibility and desirability might emerge when the individual is still in school, proactivity is a personality trait that is defined at an even younger age (Soto *et al.*, 2011).

It is clear that school-aged students, compared to college students, are likely to have less prior knowledge and preparation in entrepreneurship. Similarly, younger students are less likely to have experienced real opportunities or need to become entrepreneurs. Therefore, on the one hand, it would be reasonable to think that, on average, school students should see the possibility of becoming entrepreneurs as less feasible than older and more experienced students (Rojas & Siga, 2009; Rubio-Gil, 2012). On the other hand, it would also be fair to assume that the further students are from the opportunity or need to start their own business, the less willing they may be to do so (Giacomin *et al.*, 2011; Smith & Beasley, 2011; Van Gelderen *et al.*, 2008).

However, the assumption that the feasibility and desirability of entrepreneurship increase with age and experience do not lead to the conclusion that the perception of feasibility and desirability varies as such. For example, the self-efficacy theory states that individuals may

decide not to start a business not necessarily because they lack the actual characteristics needed to do so but because they perceive that it is not feasible for them (Yar Hamidi, Wennberg & Berglund *et al.*, 2008). Furthermore, if perceptions were close to reality and a small proportion of students perceived entrepreneurship as feasible or desirable, those students would still be likely to be the ones who would show entrepreneurial intention (Krueger, 2003).

Finally, the literature suggests a positive relationship between proactivity and innovation (Correa, Queiroz & Shigaki, 2021; Yan, 2010). People with a proactive personality tend to see new opportunities and take the initiative to improve organizations (Bateman & Crant, 1993; Chell, 2008; Parker, 1998; Rahaman *et al.*, 2021; Yalcintas, Iyigün & Karabulut, 2021). Among Business owners' propensity to act is also a desirable attribute that drives continuous innovation (Kickul & Gundry, 2002). Therefore, we can deduce that proactive students will view entrepreneurship in a positive light (Biswas & Verma, 2021).

2. Theoretical framework

Since 1975, a large number of studies have attempted to test different theories on Entrepreneurial Intention (EI). Researchers have approached this attempt by basing their studies on a wide range of alternative models (Ahmed, Klobas & Ramayah, 2019; Barba-Sánchez, Mitre-Aranda & del Brío-González, 2022; Schlaegel & Koenig, 2014), but as the determinants of EI can have different origins, the very definition of EI also varies across studies.

2.1 Entrepreneurial intention models

Theories that associate the decision to start an entrepreneurial venture with personality traits and environmental or contextual elements remain widely accepted. The Theory of Planned Behavior (TPB) (Ajzen, 1991) and the Entrepreneurial Event Model (EEM) (Shapero & Sokol, 1982) are perhaps the most widely used EI models (Barba-Sánchez, Mitre-Aranda & del Brío-González, 2022; Kobylinska, 2022; Schlaegel & Koenig, 2014; Tran, 2018). More recent theories such as Krueger and Brazeal's Theory of Entrepreneurial Potential (1994)

and Rauch and Frese's Model of Entrepreneurs' Personality Characteristics and Success (2007) also focused on personality traits and contextual elements. While the first one integrates both TPB and EEM (Farrell *et al.*, 2022; Pérez & Ubierna, 2021), the latter also adds elements such as prior knowledge and goals (Krueger & Brazeal, 1994; Palamida, 2016; Rauch & Frese, 2007; Tran, 2018).

On the other hand, the cognitive model highlights a difference between entrepreneurs and non-entrepreneurs in the way they process information. According to this theory, people who intend to start businesses are distinguished from those who will not do so mainly by their cognitive mechanisms (Baron, 2004; Salmony & Kanbach, 2021; Sánchez, 2012). However, personality traits can still be good predictors of people's cognitive process (Krueger & Brazeal, 1994; Simon & Houghton, 2002). Risk propensity, a well-known personality trait, has been identified as a variable that precedes the entrepreneurial decision-making processes (Bag & Omrane, 2021; Kadir, Salim & Kamarudin, 2012; Salmony & Kanbach, 2021; Tumasjan, Welpe & Spörrle, 2013; Yan, 2010). Likewise, there is sound evidence of a positive relationship between risk propensity and entrepreneurial intention in the samples of adolescents (Popescu *et al.*, 2016; Sánchez, 2013; Volery *et al.*, 2013).

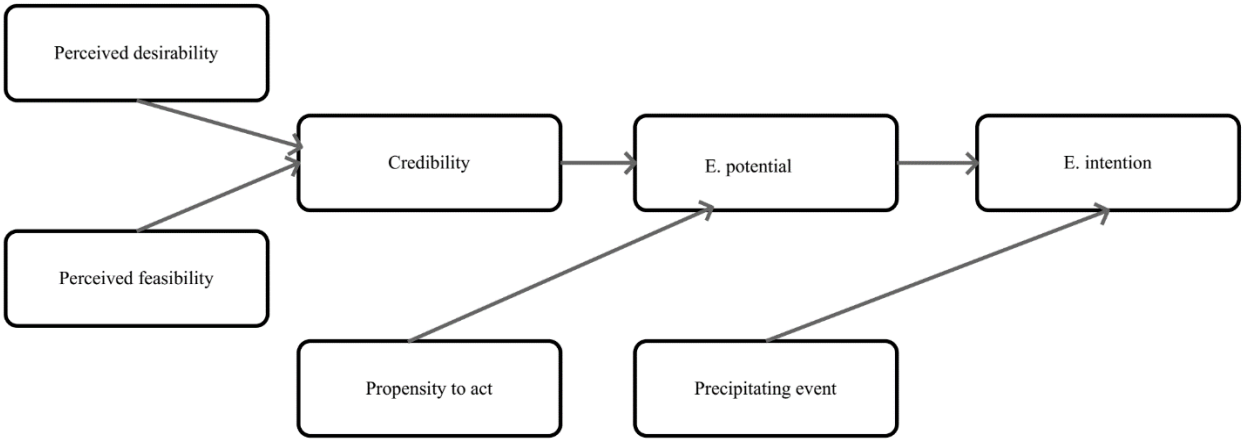
More recent models have approached the composition of environmental or contextual factors. Some authors have addressed the idea of the Entrepreneurial Ecosystem (EE), stating that entrepreneurship finds its origin mainly in sociocultural or institutional conditions that are external to the entrepreneur (Cao & Shi, 2021; Monreal, 2015; Orellana & Martínez, 2013; Selmi & Haddad, 2013; Stam & Van de Ven, 2019). Cabana-Villca *et al.* (2013) understand EE as the set of conditions and circumstances surrounding a particular place that affect —directly or indirectly— the entrepreneurial intentions of the people linked to that space. However, no definition of EE has been widely accepted (Stam & Spigel, 2016; Stam & Van de Ven, 2019).

Although the series of studies published in recent decades reiterate the key role of both personal traits and the environment in determining EI, there is still a need to increase

certainty about which independent elements are the most influential and the most accurate model of EI (Fayolle & Liñán, 2014; Liñán, Rodríguez & Rueda, 2011).

The structure of Krueger and Brazeal's (1994) Entrepreneurial Potential Model (EPM) is very similar to the attempts to model EI made by Veciana, Aponte and Urbano (2005), Yan (2010), and Liñán, Rodríguez & Rueda (2011). All of them use a structure taken from the TPB and the EEM and add certain elements such as propensity to act precipitating event or entrepreneurial knowledge to the ideas of perceived desirability and perceived feasibility (Liñán, Rodríguez & Rueda, 2011; Veciana, Aponte & Urbano, 2005; Yan, 2010). The present work will also build its model from the same structure (Figure 1).

Figure 1. Entrepreneurial Potential Model (EPM)



Source. Krueger and Brazeal, 1994.

Krueger and Brazeal (1994) describe the perceived desirability of entrepreneurial action as a combination of how subjects perceive their attitudes towards the act and the social norms they perceive. While the former refers to the perception of how desirable or undesirable certain likely personal behaviors are, the latter subsumes the social, external, or environmental forces that the individual perceives may affect his/her action or performance (Ajzen, 1991; Krueger & Brazeal, 1994; Veciana, Aponte & Urbano, 2005). On the other hand,

the idea of perceived feasibility or perceived venture feasibility would be analogous to the concept of perceived self-efficacy (Bandura, 1977).

Thus, it would refer to the perception of how easy or difficult it is to perform a certain action or how capable the individual is of performing a specific job, depending on both personal traits and contextual factors (Ajzen, 1991; Krueger & Brazeal, 1994; Shapero & Sokol, 1982; Veciana, Aponte & Urbano, 2005; Yan, 2010). Empirical evidence shows that there is a positive and significant relationship between these constructs and EI in adult samples (Nguyen *et al.*, 2019; Otache *et al.*, 2021) as well as in adolescent samples (Marques *et al.*, 2012; Mothibi & Malebana, 2019; Purwana, Suhud & Rahayu, 2017).

According to Bateman and Crant (1993), the propensity to act —or proactivity— refers to a person who takes actions, shows initiative, seeks new opportunities, drives change, and barely respects circumstantial constraints. It is a purely personal factor that is statistically significantly associated with EI in both university and high school students' samples (Biswas & Verma, 2021; Hu *et al.*, 2018; Yan, 2010).

Conversely, the precipitating event is a significant contextual factor or life event that may push the individual toward entrepreneurship. It is a displacement that transforms a latent entrepreneurial potential into a perceived entrepreneurial intention (Krueger & Brazeal, 1994; Shapero & Sokol, 1982; Yan, 2010). Finally, Liñán, Rodríguez and Rueda (2011) present the idea of entrepreneurial knowledge developed by Kor, Mahoney and Michael (2007) as the level of awareness of the entrepreneurial framework and career, which could be directly proportional to the entrepreneurial intention. However, it fails to demonstrate a statistically significant relationship between entrepreneurial knowledge and EI.

Considering the evidence mentioned above and the extensive knowledge from previous research, there is no reason to discard any structural component from Krueger and Brazeal's EPM. Krueger maintains that perceived feasibility, desirability, and propensity to act together explain more than 50% of EI (Veciana, Aponte & Urbano, 2005). The rest of the explanation lies partly in the precipitating event and partly in the omitted variables. The present study

does not include precipitating events in the analysis since it is impossible to measure them objectively.

2.2 Definition of entrepreneurial intention

From a psychological perspective, entrepreneurship is a planned and intentional behavior that can be strongly expressed and predicted by the EI (Krueger & Brazeal, 1994; Liñán & Fayolle, 2015). Thus, entrepreneurship constitutes a long, complex, and demanding process involving the discovery, evaluation, and exploitation of opportunities to create new products and services (Shane & Venkataraman, 2000), whose beginning is found in EI (Krueger, 1993). Specifically, EI refers to a conscious state of mind that precedes action and directs attention to entrepreneurial behaviors, such as starting a new venture and becoming an entrepreneur (Moriano *et al.*, 2012).

Entrepreneurial intention is not the same as becoming an entrepreneur. Instead, it is an action that shows an individual's intention to become an entrepreneur while demonstrating entrepreneurial potential. The mere declaration of people's intentions to carry out an entrepreneurial action does not fully demonstrate that they show EI (Fayolle & Liñán, 2014; Krueger & Brazeal, 1994; Meoli *et al.*, 2019; Yan, 2010). It is necessary to take the first step to action.

The E&E course mentioned above offers students the opportunity to participate in a voluntary Entrepreneurship Competition (EC) at the end of the academic year. Students participating in the competition must develop a tactical business project and convince a board of entrepreneurs to invest in their enterprise. The winning projects are to be implemented by their creators. The EC is called to become the students' first step towards entrepreneurial action. Therefore, we consider participation in the competition as a sign of entrepreneurial intention.

People engaging in the EC may indeed possess different traits and social influences than individuals who only declare the idea of becoming entrepreneurs. Furthermore, people who take the first step toward becoming entrepreneurs may end up not starting any business, although their actions have demonstrated EI. For example, individuals might engage in EC only after knowing that it will not cause them any material loss in case their project fails and never start a real business for fear of failure. When participation in EC is taken as EI, the latter may cause an impartial observer to underestimate the relevance of optimism as a determinant of EI.

However, it may also happen that students who are afraid of failure or more conservative decide not to participate in the EC because, for example, they may not want to jeopardize their reputation as potential entrepreneurs in a mock exercise. In such a case, the observer may overestimate the relevance of risk-taking behavior as a determinant of EI.

Given the methodological limitations of studies with no control group, it is not possible to demonstrate whether there is a difference between the average profiles of individuals who declare EI and those who join EC. This is because it is impossible to isolate a group of non-future entrepreneurs before they are presented with the opportunity to join EC. Notwithstanding, whether or not to join the EC places students before a realistic vocational choice, considering participation in the EC a closer estimator of EI than a simple declaration of intentions.

3. Methodology

3.1 Sample

The sample for this study is composed of 2373 Technical-Professional Education (TPE) students. Data were collected in four different TPE centres located in three regions in Chile: O'Higgins, La Araucanía, and Región Metropolitana. There were 692 students enrolled at the Instituto Superior de Comercio Eliodoro Domínguez, 473 at the Liceo Industrial de Angol, 317 at the Liceo Industrial de Nueva Imperial, and 891 at the Liceo Industrial Presidente Pedro Aguirre Cerda. Male students accounted for 75.6% of the total sample, and the remaining 24.4%

were female students. More than a third of the students —36%— was in the first grade of secondary education —high school—. Of the others, 23.1% were in second grade, 23.2% in third grade, and 17.7% in fourth grade —the last high school grade in Chile—.

The final sample used for the regression model is smaller than the original sample —N=970— and is equivalent to the sum of all students in the third or fourth year of high school. This reduction is a consequence of using participation in the entrepreneurship competition as the dependent variable. Since the competition was only open to third and fourth-grade students, the youngest students in the sample were not offered the possibility of participating. Table 1 shows the final distribution of subjects by gender, grade, and school.

Table 1. Distribution of male and female students by grade and school

Grade	Female Students		Male Students	
	N	%	N	%
Third grade —*Tercero Medio*—	116	51.1	435	58.5
Fourth grade —*Cuarto Medio*—	111	48.9	308	41.5
School				
1. I.S. Eliodoro D.	190	83.7	53	7.1
2. L.I. de Angol.	5	2.2	193	26.0
3. L.I. N. Imperial.	16	7.0	135	18.2
4. L.I. Pre. P.A.C.	16	7.0	362	48.7
Total	227	100	743	100

Source. Own work.

Data collection took place in the second semester of the year 2017. Subjects —2373 TPE students— were asked to complete a voluntary survey after signing a consent form. The survey, delivered as a self-administered questionnaire, contained 158 items in addition to some sociodemographic questions. Thirty-six items (36) referred to activities, preferences, and proximity to entrepreneurship; 102 items were about personal traits, and the last 20 items were about the school as an entrepreneurial ecosystem. The personal traits and entrepreneurial ecosystem items were part of the Degree of entrepreneurial personality and entrepreneurial ecosystem questionnaire (EPEECQ).

3.2 Measures and factor analysis

3.2.1 Entrepreneurial intention.

The dependent variable in the regression model is a dummy variable representing entrepreneurial intention. It is obtained from the dataset section that registers whether or not students participated in the entrepreneurship competition. The independent variables (Table 2) were built on indicators developed from the questions in the EPEECQ questionnaire above. The EPEECQ is supposed to work as an input for developing 26 indicators or subscales: 20 regarding entrepreneurial personality traits and six regarding aspects of the entrepreneurship ecosystem.

Among the first traits, some features could be associated with the concept of perceived feasibility, others are clear precedents to the idea of personal attitude, and others refer directly to the concept of propensity to act. On the other hand, the last one describes how well-prepared each student feels after taking the E&E course, which is also an element of the feasibility domain. Finally, 36 items exploring activities, preferences, and proximity to entrepreneurship were used to build five indicators with a notion of the respondent's attitude towards entrepreneurship and perceived social norms related to entrepreneurship.

A confirmatory factor analysis performed for the present study on STATA helped to ensure that the final indicators for each of the components in the EPM were independent of each other. The latter was necessary after a reasonably small number of the questions initially included in the EPEECQ —3.66% of the total— were eliminated from the survey due to an administrative error. This change weakened some of the indicators and made some pairs of indicators correlated. Thus, we subjected all the questions that shaped those indicators to confirmatory factor analysis.

The items in the EPEECQ are designed as 5-point Lickert-type scale questions, with personal trait items ranging from Incapable (1) to Very capable (5) and ecosystem items ranging from Strongly disagree (1) to Strongly agree (5). Factor analysis combined the correlated questions

among the total 122, resulting in 14 final independent factors. The 14 factors were standardized so that their mean equaled zero, and their standard deviation converged to one.

3.2.2 Perceived feasibility.

Krueger and Brazeal (1994) acknowledge that self-efficacy or feasibility could be interpreted as a list of critical skills or capabilities needed to overcome obstacles to perform a given action. Shapero and Sokol (1982) were more specific and mentioned financial support, education, consultation, and advice as some key variables of comparable feasibility.

Among the factors created from the EPEECQ, a group of ten variables depicted comparable elements contributeing to making an entrepreneurial venture more feasible. Two of them observe the idea of locus of control, a personal trait related to the notion of managing one's destiny, influencing a person's idea of self-efficacy (Spector, 1982). Six variables observe the respondents' perception of the skills that are recognized as key to success in an entrepreneurial venture: management skills, autonomy, communication skills, decision-making skills, innovation skills, leadership, learning skills, methodical approach, opportunism, perseverance, and tolerance to stress (Bergner, Auburger & Paleczek, 2021; Ferreira *et al.*, 2012; Muniz *et al.*, 2014; Salmony & Kanbach, 2021). Finally, two variables observe the students' preparedness towards entrepreneurship after the E&E course in terms of training and research, advice, knowledge of finance, innovation, social networking, and promotion and marketing.

3.2.3 Perceived desirability.

Here, Krueger and Brazeal (1994) recommend focussing on the intrinsic long—and short—term perceived rewards of action, breaking down the desire to start a business both incentives and disincentives (Brazeal, 1993; Krueger & Brazeal, 1994). The subjects in the present study were directly asked whether the idea of creating their own company in the future was something they found motivating or not. This information was used as a dummy variable referred to as perceived desirability. In addition, three personality traits extracted from the EPEECQ and four indicators of knowledge or perception of the business

environment were used as indirect proxies of incentives or disincentives from the perspective of personal attitudes and perceived social norms respectively.

Personal attitude towards an act comes indirectly from one's values, ideas, behavior, and personality. General aspects of an individual's personality, such as agreeableness, are not necessarily favorable for entrepreneurship but still may have something to say regarding that individual's attitude towards it (Ferreira *et al.*, 2012; Muniz *et al.*, 2014; Rauch & Frese, 2007; Suárez-Álvarez & Pedrosa, 2016; Zhao & Seibert, 2006). Three factors built upon the EPEECQ observe the following general aspects of the respondents' attitude in a hypothetical work situation: risk propensity, social awareness, willingness to work in a team, honesty, optimism, and motivation.

Individuals' perceived social norms towards an act can be observed through their understanding of what relevant people in their lives might think of such action (Krueger & Brazeal, 1994; Veciana, Aponte & Urbano, 2005). Thus, family members, relatives, people with experience in the working place, and public opinion can work as a reference to social norms. From the items in the questionnaire, we developed four indicators exploring students' activities concerning entrepreneurship and their proximity to the entrepreneurship domain. Two dummy variables register the respondents' perception of the social recognition of entrepreneurs and whether the household head works in his or her own company. Two ordinal variables describe respondents' proximity to the entrepreneurial scene through the level of work experience and knowledge of entrepreneurs' relatives, and their knowledge of actual firms.

3.2.4 Propensity to act.

Among the factors built upon the EPEECQ, one measures individuals' proactivity, initiative, and undertaking tendency. The indicator accurately outlines the idea of propensity to act, combining 11 questions on a 5-point Lickert-type scale. Among the 11 items considered, some examples are: It is often the first member of the team to come up with an idea, he/she

tends to make money by selling things to classmates or neighbors, he/she does not wait to be told to fulfill his/her responsibilities.

Table 2. Overview of model variables by gender

	Female		Male	
	Mean	SD	Mean	SD
Entrepren. Intention	0.4***	0.5	0.1	0.3
HOH educational level				
1. Primary inc. or less	9.3		13.5	
2. Primary or Sec. inc.	25.1		31.6	
3. Secondary or T. inc.	58.1*		45.5	
4. Tertiary or PG. inc.	7.0		8.1	
5. Postgraduate compl.	0.4		1.3	
L. of control – General	0.1	0.9	0.0	1.0
L. of control – School	0.3***	0.9	-0.0	1.1
Skills – Innovativeness	0.4***	1.0	-0.1	1.0
Skills - Autonomy, P...	0.0	1.1	0.1	1.0
Skills - Emotio. stab.	-0.2***	1.2	0.2	0.9
Skills - Methodical ap.	0.2**	0.9	0.0	0.9
Skills - Communication	-0.1	1.0	0.1	0.9
Skills - Set of mult...	0.2**	0.9	-0.0	1.0
School prep. - General	-0.1	1.0	-0.1	1.1
School prep. - F. & R.	0.3***	1.2	-0.1	1.0
Perceived desirability	1.2	0.4	1.2	0.4
Risk propensity	0.1	0.9	0.0	1.0
Agreeableness	0.4***	0.9	-0.0	1.0
Optimism – Motivation	-0.0	1.1	0.1	1.0
Ent. social recognition	1.6	0.5	1.6	0.5
Working experience	1.3***	1.8	2.3	1.8
Entrepreneur relatives	2.1*	1.0	2.2	1.0
HOH independent	0.2	0.4	0.2	0.4
Propensity to act	0.2	0.9	0.1	1.0
Note: Statistically sig. difference between means - * p < 0:05, ** p < 0:01, *** p < 0:001				

Source. Own work based on SPSS V23 results.

3.3 Regression

We performed a regression analysis to estimate entrepreneurial intention (EI) as the dependent variable of a model that presents 19 independent variables, each falling under one of the following categories: perceived feasibility (PF), perceived desirability (PD), or propensity to act (PA). The model also includes sociodemographic covariates (CV) such as grade, gender, and educational level of the head of household (HOH). It also controls the school which the students attend.

As the dependent variable is binary—dummy—the analysis was performed using a logistic regression model; therefore, the size of the "beta" coefficients should not be used for interpretation. The theoretical regression model was tested and adapted, so it does not present heteroscedasticity problems, multicollinearity, or auto-correlation. The final model has a reasonably good fit—McKelvey & Zavoina's pseudo-R^2 of 0.450—.

$$log\left(\frac{EI}{1-EI}\right) = \beta o + \sum_{i} \beta\, i * PFi + \sum_{j} \beta\, j * PDj + \sum_{k} \beta\, k * PAk + \sum_{C} \beta\, c * CVc$$

4. Results

Table 3 presents descriptive statistics such as the "beta" coefficient —left column—, the z-statistic —right column—, and the statistical significance —star to the right of the value in the left column— of each variable in each model. It shows five different models, the complete model (5) and four partial versions, each with one category of independent variables less than the one to its left. Thus, model (4) does not include PA variables, and model (3) ignores both PA and perceived social norms. Model (2) only considers PF variables and the covariates, setting aside all PA and PD variables. Finally, model (1) only includes the sociodemographic and control variables.

Both grade and school covariates are statistically significantly associated with EI, with a significance level of at least 99%. Considering that grade directly correlates with the student's age, the former could be interpreted as a statistically significant negative relationship between age and EI —p=0.000—. The sociodemographic variable HOH educational level was not associated with the dependent variable. Models (3), (4), and (5) show that risk propensity —p=0.037— has a statistically significant relationship with the dependent variable. Thus, with a significance level of 95%, it can be concluded that the more risk-averse students are, the more likely they are to exhibit entrepreneurial intention. No other theoretical variable is statistically significantly associated with EI.

These results cannot confirm our hypothesis. On the one hand, PA was found to have no statistically significant relationship with EI. On the other hand, two out of three personal attitude variables, along with the perceived desirability variable, and the perceived social norms variables, were not associated with the dependent variable in any of the relevant regression models. Such results are insufficient to confirm our hypothesis, which expected associations of PA and PD with EI. Moreover, the PF variables were also not statistically significantly associated with EI in any relevant regression models. The latter contradicted the hypothesis, which anticipated a positive relationship between PF and EI.

Table 3. Results of the logistic regression model of entrepreneurial intention

	(1) Entrep. intention		(2) Entrep. intention		(3) Entrep. intention		(4) Entrep. intention		(5) Entrep. intention	
Entrep. intention										
Grade - Cuarto Medio	-1.435***	(-6.64)	-1.492***	(-6.70)	-1.515***	(-6.73)	-1.556***	(-6.80)	-1.554***	(-6.79)
Gender - Male	-0.452	(-1.62)	-0.392	(-1.34)	-0.339	(-1.13)	-0.453	(-1.47)	-0.453	(-1.47)
HOH Ed. - Level 1 (ref: Level 5)	0.974	(0.82)	0.759	(0.64)	0.575	(0.49)	0.519	(0.43)	0.511	(0.43)
HOH Ed. - Level 2 (ref: Level 5)	1.399	(1.20)	1.161	(1.00)	1.011	(0.89)	0.998	(0.86)	0.989	(0.85)
HOH Ed. - Level 3 (ref: Level 5)	1.177	(1.01)	0.972	(0.84)	0.807	(0.71)	0.787	(0.68)	0.778	(0.67)
HOH Ed. - Level 4 (ref: Level 5)	1.078	(0.90)	0.817	(0.68)	0.707	(0.60)	0.606	(0.50)	0.597	(0.50)
HOH Ed. - Level 5	0	(.)	0	(.)	0	(.)	0	(.)	0	(.)
School 1	0	(.)	0	(.)	0	(.)	0	(.)	0	(.)
School 2 (ref: School 1)	-2.892***	(-6.81)	-2.892***	(-6.72)	-2.932***	(-6.76)	-2.942***	(-6.75)	-2.938***	(-6.74)
School 3 (ref: School 1)	-0.893**	(-2.94)	-0.813**	(-2.60)	-0.823**	(-2.60)	-0.852**	(-2.64)	-0.851**	(-2.64)
School 4 (ref: School 1)	-2.714***	(-7.97)	-2.802***	(-7.96)	-2.774***	(-7.80)	-2.787***	(-7.80)	-2.789***	(-7.80)
Locus of control - General			-0.210	(-1.44)	-0.107	(-0.68)	-0.114	(-0.72)	-0.117	(-0.74)

Locus of control - School tasks			0.0215	(0.17)	0.117	(0.85)	0.108	(0.77)	0.105	(0.75)
Skills - Innovativeness			0.103	(0.85)	0.167	(1.19)	0.171	(1.21)	0.182	(1.22)
Skills - Autonomy, pers...			0.183	(1.49)	0.209	(1.16)	0.213	(1.17)	0.244	(1.09)
Skills - Emot. stability			0.127	(1.14)	0.145	(1.01)	0.160	(1.11)	0.176	(1.10)
Skills - Methodical appr.			0.125	(1.12)	0.144	(1.16)	0.134	(1.07)	0.150	(1.05)
Skills - Communication			0.000984	(0.01)	0.0157	(0.13)	-0.00187	(-0.02)	0.0262	(0.15)
Skills - Set of multipl...			0.174	(1.39)	0.188	(0.88)	0.184	(0.85)	0.217	(0.84)
School preparation - General			0.0510	(0.49)	0.0530	(0.40)	0.0667	(0.49)	0.0859	(0.54)
School preparation - F. and R.			0.0870	(0.92)	0.0973	(0.96)	0.0946	(0.92)	0.0987	(0.95)
Perceived desirability					0.309	(1.24)	0.336	(1.32)	0.336	(1.32)
Risk propensity					-0.338∗	(-2.03)	-0.354∗	(-2.11)	-0.351	(-2.09)
Agreeableness					0.0805	(0.36)	0.0842	(0.37)	0.0956	(0.41)
Optimism - Motivation					0.105	(0.51)	0.110	(0.53)	0.113	(0.54)
Entr. social recognition							0.229	(1.07)	0.229	(1.07)
Working experience							0.0808	(1.36)	0.0806	(1.36)
Entrepreneur relatives							0.0801	(0.71)	0.0808	(0.71)
HOH independent							-0.0302	(-0.12)	-0.0282	(-0.12)
Propensity to act									-0.0730	(-0.24)
Constant	4.235∗∗	(2.97)	4.501∗∗	(3.09)	4.239∗∗	(2.89)	3.870∗	(2.51)	3.870∗	(2.51)
Observations	970		970		970		970		970	

t statistics in parentheses
∗ p < 0:05, ∗∗ p < 0:01, ∗∗∗ p < 0:001

Source. Own work based on SPSS V23 results.

5. Discussion

Results show that only grade and risk propensity are statistically significantly related to entrepreneurial intention when controlled by the school. Moreover, the relationship is negative in both cases.

5.1 Grade and age

Age is often associated with people's experiences. Intuition says that, in general, the older people are, the more knowledge and preparation they have to become entrepreneurs. However, the fact that most studies do not find age to be positively or negatively associated with EI might find its reason in the implicit relationship between perceived feasibility and knowledge and experience. The more experienced and knowledgeable a person considers him or herself to be, the more feasible a given task or challenge will seem to him or her. However, the results of the present study not only show that students' grade —strongly

correlated with students' age— is associated with EI even controlling for PF but could also lead to the erroneous conclusion that EI increases as age decreases.

A negative relationship between age and EI is not supported by any theory and will not be taken as relevant for this study. The grade variable differentiates students by the year of school they attended when they responded to the questionnaire. Students in third grade —*tercero medio*— were between 16 and 17 years old, and students in fourth grade —*cuarto medio*— were between 17 and 18 years old. Although third-grade students are younger on average than fourth-grade students, there may also be other differences between the two cohorts that explain the significance —different curriculum, different teachers, etc.—.

Furthermore, comparing only two age means may not be enough to establish a trend in the relationship between age and EI. While the association implies that students aged 16 to 17 are more likely to take an EI than those aged 17 to 18, it does not provide information on the relationship for students aged 14, 15, or 19. Therefore, a responsible way to assess this result would be: for unclear reasons leading to a cohort effect, students in third grade are more likely to present an EI than those in fourth grade.

5.2 Risk propensity

Risk propensity can be interpreted as an individual's perceived probability of succeeding in a particular event before finding himself/herself in a situation where he/she faces the possibility of failure and its associated consequences. When greater the reward and the more severe the consequences of failure, the greater the propensity to take risks (Brockhaus, 1980). Several studies on EI have used risk propensity as a trans-situational trait, i.e., more as an individual trait than a situational characteristic (Brockhaus, 1980; Farrukh *et al.*, 2021; Gasse, 1982; McClelland, 1961; Stewart *et al.*, 1999).

Most studies testing risk propensity as a predictor of entrepreneurial career choice show a somewhat positive relationship between the two variables. Knight (2006) and Bearse (1982) conclude that entrepreneurs are more risk-prone than other people because they make

decisions under uncertainty. Stewart and Roth (2001) found that risk propensity is higher in entrepreneurs than in managers.

Similarly, Cramer, Hartog, Jonker and Van Praag (2002) found that risk aversion discourages entrepreneurship. Keh, Foo and Lim (2002) conclude that risk-takers perceive entrepreneurial opportunities as more desirable and feasible than risk-averse individuals. Rauch and Frese (2007) found a positive, albeit small, effect of risk propensity on entrepreneurial success. Finally, Yan (2010), Zhao, Seibert and Lumpkin *et al.* (2010), and Brandstatter's (2011) meta-analysis explicitly conclude that risk propensity is a good predictor of entrepreneurial intention.

On the other hand, some studies reach the opposite conclusion regarding risk propensity and entrepreneurship. The controversial meta-analysis by Miner and Raju leads to the conclusion that entrepreneurs are more risk-averse than managers (Miner & Raju, 2004). Other studies, such as Litzinger (1963), Kogan and Wallach (1964), and Mancuso (1975), conclude that successful entrepreneurs tend to be moderate risk-takers. Simon, Houghton and *Aquino* (2000) suggest that different biases cause entrepreneurs to decide to start their business ventures partly because they overlook the associated risks.

The last-mentioned is consistent with McClelland's (1965) observation that entrepreneurs are more likely to have hope for success than fear of failure (McClelland, 1965; Palich & Bagby, 1995). Similarly, Yar Hamidi, Wennberg and Berglund (2008) find that a high perception of the financial risks of entrepreneurship negatively influences EI. Palich and Bagby (1995) go further and find that entrepreneurs assess business ventures more positively than others when they have a low-risk propensity.

The latter could work as a substantial body of evidence supporting the idea of a risks-conscious entrepreneur profile. However, the results of the present study may still fail to describe an entrepreneur with such a pattern. The study does not test students against a specific set of company-specific risks. An approach similar to that of Nicholson *et al.* (2005) instead provides a notion of the respondent's risk propensity in general terms. Both types of

risk—specific and general—can be different. In fact, Ray (1994) suggests that the risks of everyday life—health issues, physical consequences, etc.—should be measured differently from the risks associated with economic activities. Thus, even accepting the hypothesis that entrepreneurs would be moderate in taking economic risks, saying that an entrepreneur has a risk-averse personality—in general—is a different thing.

Even so, our results clearly show a negative association between risk propensity and entrepreneurial intention. One could argue that the subjects are still in school and so have—on average—fewer responsibilities and less knowledge of the entrepreneurial field than university students and young professionals, making them less aware of the consequences of economic failure. Also, an inexperienced but achievement-driven young individual may not recognize that some specific critical tasks in a business venture are beyond his or her control (Sánchez, 2012; Simon, Houghton & Aquino *et al.*, 2000). Such a romantic idea of control would not be incompatible with a risk-averse personality. However, it is close to McClelland's (1965) or Collins, Hanges and Locke (2004) depiction of an entrepreneur with moderate risk propensity and high achievement motivation. As the present study does not measure achievement motivation, it is not possible to associate the results with such an entrepreneurial profile.

5.3 Perceived feasibility, perceived desirability, and propensity to act

The results did not find a relationship between EI and perceived feasibility, perceived desirability, and proactivity for the group of school-age subjects. Krueger and Brazeal (1994), Yan (2010), Liñán, Rodríguez and Rueda (2011), and Schlaegel and Koenig (2014), among others, had found a positive association between perceived feasibility and entrepreneurship. On the other hand, Liñán, Rodríguez and Rueda (2011) and Schlaegel and Koenig (2014), among others, had found a significant association between at least some elements of perceived desirability and EI. In contrast, Yan (2010) observed a positive association between proactivity and EI. In addition, Zhao and Seibert (2006); Rauch and Frese (2007); Yar Hamidi, Wennberg and Berglund (2008); and Farrington, Venter, Schrage and Van der Meer (2012), among others, had observed statistically significant relationships between one or more

personality traits —other than risk propensity— and entrepreneurial status. However, none of these studies exclusively used data on underage students.

We hypothesized that PF, PD, and PA would be associated with EI. However, only one attribute of PD—risk propensity—was observed to have a statistically significant relationship with EI. Therefore, the hypothesis was not confirmed. The difference regarding the results of previous studies could only be a consequence of some of the methodological decisions adopted in the present work, which would make our research less comparable with others, and its results would be irrelevant.

However, there is a possibility that such a difference is a consequence of essential discrepancies between school-age TVET students and university students regarding EI. Average dissimilarities in entrepreneurship knowledge and preparation, as well as variations in the cohorts' proximity to the actual need or opportunity to start a business, may cause the determinants of EI to work differently for the two groups. As this study only focused on junior students, it is not possible to compare undergraduate or graduate students and find these differences.

Due to the subjectivity of self-awareness and perceptions, it is possible that both perceptions of entrepreneurial feasibility and entrepreneurial desirability are not fundamentally different between the cohort in this study and average undergraduate or graduate students. The results of our research suggest it might be worthwhile to measure the effects of actual feasibility and desirability in the EI model, especially when the age of the subjects becomes a variable. Practical feasibility could be associated with actual knowledge and experience.

On the other hand, desirability is a much more intangible concept whose interpretation depends on the subject's self-perception. However, using a broader and more complex set of variables measuring attitude towards entrepreneurship and perceived social norms could help better understand the differences between cohorts. For example, it would have been helpful for our study to measure achievement motivation. By doing so, we could have

constructed a much clearer association between the moderate risk propensity feature and McClelland's idea of entrepreneurs' hope for success.

6. Conclusion

We studied the entrepreneurial intention of a group of 970 TVET students between 16 and 18 years of age in three regions of Chile. Using a well-fit logistic regression model based on Krueger and Brazeal's (1994) Entrepreneurial Potential Model (EPM), we conclude that students with moderate risk propensity are more likely to show entrepreneurial intention. Furthermore, our study did not observe any clear association between perceived feasibility and perceived desirability of a business venture with students' entrepreneurial intention. We also did not find a relationship between propensity to act and students' entrepreneurial intention.

The results show preliminarily the inadequacy of the variables included in the EPM to understand the entrepreneurial intention of school students. In this sense, the main contribution of this work is to highlight the need to approach the study of adolescent entrepreneurial intention as a phenomenon with its characteristics, in which the traditional models used up to now, as mentioned above, tested mainly with data from undergraduate or graduate university students, do not necessarily reflect its particularities.

Limitations. First, although our results found a statistically significant—negative—relationship between risk propensity and entrepreneurial intention, it cannot be concluded that this association is causal. Second, we used a general indicator of risk propensity that considers social, financial, professional and health risks rather than focusing only on economic risks. The latter and the fact that we did not measure achievement motivation prevented us from more robustly proving or ruling out the profile of a risk-averse, blindly hopeful entrepreneur who is a victim of optimism bias (Collins, Hanges & Locke, 2004; McClelland, 1965).

Future research. The lack of significance of perceived entrepreneurial feasibility directly contradicts the most important conclusion of Krueger and Brazeal (1994). They had given it primacy among the elements of the EPM. In light of these results, further research should focus on the effects on entrepreneurial intention of age, experience, and knowledge, as well as on the proximity to the opportunity and need to start a business —precipitating event—. To this end, comparing a cohort of high school students with a group of undergraduate or graduate university students would be helpful. Finally, using a broader and more complex set of personality traits, incentives, and disincentives, could help develop a better indicator of perceived desirability.

References

Ahmed, T.; Klobas, J. E.; Ramayah, T. (2019). Personality traits, demographic factors and entrepreneurial intentions: Improved understanding from a moderated mediation study. *Entrepreneurship Research Journal*, 11(4), 1-16. DOI: https://doi.org/10.1515/erj-2017-0062

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211. DOI: https://doi.org/10.1016/0749-5978(91)90020-T

Anjum, T.; Amoozegar, A.; Farrukh, M.; Heidler, P. (2022). Entrepreneurial intentions among business students: the mediating role of attitude and the moderating role of university support. *Education + Training*. DOI: https://doi.org/10.1108/ET-01-2021-0020

Bag, S. ; Omrane, A. (2021). The relationship between the personality traits of entrepreneurs and their decision-making process: The role of manufacturing SMEs' institutional environment in India. *Forum Scientiae Oeconomia*, 9(3), 103-122.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191-215. DOI: https://doi.org/10.1037/0033-295X.84.2.191

Barba-Sánchez, V.; Mitre-Aranda, M.; del Brío-González, J. (2022). The entrepreneurial intention of university students: An environmental perspective. *European Research on Management and Business Economics*, 28(2), 100184. DOI: https://doi.org/10.1016/j.iedeen.2021.100184

Baron, R. A. (2004). The cognitive perspective: A valuable tool for answering entrepreneurship's basic "why" questions. *Journal of Business Venturing*, 19(2), 221-239. DOI: https://doi.org/10.1016/S0883-9026(03)00008-9

Bateman, T. S.; Crant, J. M. (1993). The proactive component of organizational behavior: A measure and correlates. *Journal of Organizational Behavior,* 14(2), 103-118. DOI: https://doi.org/10.1002/job.4030140202

Bearse, S. J. (1982). *A study of entrepreneurship by region and SMSA size*. Philadelphia, PA: Public/Private Ventures.

Bergner, S.; Auburger, J.; Paleczek, D. (2021). The why and the how: A nexus on how opportunity, risk and personality affect entrepreneurial intention. *Journal of Small Business Management*, DOI: https://doi.org/10.1080/00472778.2021.1934849

Bird, B.; Jelinek, M. (1989). The operation of entrepreneurial intentions. *Entrepreneurship: Theory and Practice*, 13(2), 21-29. DOI: https://doi.org/10.1177/104225878801300205

Biswas, A.; Verma, R. K. (2021). Attitude and alertness in personality traits: A pathway to building entrepreneurial intentions among university students. *The Journal of Entrepreneurship*, 30(2), 367-396. DOI: https://doi.org/10.1177/09713557211025656

Brandstatter, H. (2011). Personality aspects of entrepreneurship: A look at five meta-analyses. *Personality and Individual Differences,* 51(3), 222-230. DOI: https://doi.org/10.1016/j.paid.2010.07.007

Brazeal, D. V. (1993). Organizing for internally developed corporate ventures. *Journal of Business Venturing,* 8(1), 75-90. DOI: https://doi.org/10.1016/0883-9026(93)90012-T

Brockhaus, R. H. (1980). Risk taking propensity of entrepreneurs. *Academy of Management Journal*, 23(3), 509-520. DOI: https://doi.org/10.2307/255515

Brüne, N.; Lutz, E. (2020). The effect of entrepreneurship education in schools on entrepreneurial outcomes: a systematic review. *Management Review Quarterly*, 70(2), 275-305. DOI: https://doi.org/10.1007/s11301-019-00168-3

Bui, T. H. V.; Nguyen, T. L. T.; Tran, M. D.; Nguyen, T. A. T. (2020). Determinants influencing entrepreneurial intention among undergraduates in universities of Vietnam. *The Journal of Asian Finance, Economics and Business*, 7(7), 369-378. DOI: https://doi.org/10.13106/jafeb.2020.vol7.no7.369

Cabana-Villca, R.; Cortés-Castillo, I.; Plaza-Pasten, D.; Castillo-Vergara, M.; Álvarez-Marin, A. (2013). Análisis de las capacidades emprendedoras potenciales y efectivas en alumnos de centros de educación superior. *Journal of Technology Management and Innovation*, 8(1), 65-75. DOI: https://doi.org/10.4067/S0718-27242013000100007

Cao, Z.; Shi, X. A. (2021). A systematic literature review of entrepreneurial ecosystems in advanced and emerging economies. *Small Business Economics*, 57(1), 75-110. DOI: https://doi.org/10.1007/s11187-020-00326-y

Castillo, D. (2016). *Módulo Emprendimiento y Empleabilidad, Educación Media Técnico Profesional: Manual del Profesor*. Santiago de Chile: CORFO, Ministerio de Educación de Chile.

Chell, E. (2008). *The entrepreneurial personality: A social construction.* London: Routledge. DOI: https://doi.org/10.4324/9780203938638

Collins, C. J.; Hanges, P. J.; Locke, E. A. (2004). The relationship of achievement motivation to entrepreneurial behavior: A meta-analysis. *Human Performance,* 17(1), 95-117. DOI: https://doi.org/10.1207/S15327043HUP1701_5

Correa, V. S.; Queiroz, M. M.; Shigaki, H. B. (2021). Social capital and individual entrepreneurial orientation: Innovativeness, proactivity, and risk-taking in an emerging economy. *Benchmarking: An International Journal*, 28(7), 2280-2298. DOI: https://doi.org/10.1108/BIJ-11-2020-0602

Cramer, J. S.; Hartog, J.; Jonker, N.; Van Praag, C. M. (2002). Low risk aversion encourages the choice for entrepreneurship: An empirical test of a truism. *Journal of Economic Behavior and Organization,* 48(1), 29-36. DOI: https://doi.org/10.1016/S0167-2681(01)00222-0

Dao, T. K. ; Bui, A. T.; Doan, T. T. T. ; Dao, N. T. ; Le, H. H.; Le, T. T. H. (2021). Impact of academic majors on entrepreneurial intentions of Vietnamese students: An extension of the theory of planned behavior. *Heliyon*, 7(3), e06381. DOI: https://doi.org/10.1016/j.heliyon.2021.e06381

De Clercq, D.; Honig, B.; Martin, B. (2013). The roles of learning orientation and passion for work in the formation of entrepreneurial intention. *International Small Business Journal*, 31(6), 652-676. DOI: https://doi.org/10.1177/0266242611432360

Donaldson, C. (2019). Intentions resurrected: A systematic review of entrepreneurial intention research from 2014 to 2018 and future research agenda. *International Entrepreneurship and Management Journal*, 15(3), 953-975. DOI: https://doi.org/10.1177/0971355720974801

Donaldson, C.; Liñán, F.; Alegre, J. (2021). Entrepreneurial intentions: Moving the field forwards. *The Journal of Entrepreneurship*, 30(1), 30-55. DOI: https://doi.org/10.1177/0971355720974801

Farrell, A.; Mapanga, W.; Chitha, N.; Ashton, J.; Joffe, M. (2022). Characteristics, enablers and barriers affecting entrepreneurial behaviour for academics in low- and middle-income countries: A scoping review, *Development Southern Africa*. DOI: https://doi.org/10.1080/0376835X.2022.2027230

Farrington, S. M.; Venter, D. J.; Schrage, C. R.; Van der Meer, P. O. (2012). Entrepreneurial attributes of undergraduate business students: A three country comparison revisited. *South African Journal of Economic and Management Sciences,* 15(4), 333-351. DOI: https://doi.org/10.4102/sajems.v15i4.213

Farrukh, M.; Raza, A.; Sajid, M.; Rafiq, M.; Hameed, R.; Ali, T. (2021). Entrepreneurial intentions: the relevance of nature and nurture. *Education + Training*, 63(7/8), 1195-1212. DOI: https://doi.org/10.1108/ET-01-2021-0028

Fayolle, A.; Liñán, F. (2014). The future of research on entrepreneurial intentions. *Journal of Business Research*, 67(5), 663-666. DOI: https://doi.org/10.1016/j.jbusres.2013.11.024

Ferreira, J. J.; Raposo, M. L.; Gouveia-Rodrigues, R.; Dinis, A.; Do Paco, A. (2012). A model of entrepreneurial intention. *Journal of Small Business and Enterprise Development,* 19(3), 424-440. DOI: https://doi.org/10.1108/14626001211250144

Garaika, M. H. (2019). The influence of credibility and voluntariness toward technological use behavior: Entrepreneurial potential model approach. *International Journal of Entrepreneurship*, 23(2), 1-9.

Gasse, Y. (1982). Elaborations on the psychology of the entrepreneur. In C. A. Kent; D. L. Sexton; K. H. Verper (Eds.) *Encyclopedia of entrepreneurship*. (57-71). Englewood Cliffs: Prentice-Hall.

Giacomin, O.; Janssen, F.; Pruett, M.; Shinnar, R.; Llopis, F.; Toney, B. (2011). Entrepreneurial intentions, motivations and barriers: Differences among American, Asian and European students. *International Entrepreneurship and Management Journal*, 7(2), 219-238. DOI: https://doi.org/10.1007/s11365-010-0155-y

Hernández-Sánchez, B. R. ; Sanchez-García, J. C. ; Mayens, A. W. (2019). Impact of entrepreneurial education programs on total entrepreneurial activity: The case of Spain. *Administrative Science*, 9(25), 25. DOI: https://doi.org/10.3390/admsci9010025

Hu, R.; Wang, L.; Zhang, W.; Bin, P. (2018). Creativity, proactive personality, and entrepreneurial intention: The role of entrepreneurial alertness. *Frontiers in Psychology*, 9(951). DOI: https://doi.org/10.3389/fpsyg.2018.00951

Kadir, M. B.; Salim, M.; Kamarudin, H. (2012). The relationship between educational support and entrepreneurial intentions in Malaysian higher learning institution. *Procedia-Social and Behavioral Sciences*, 69, 2164-2173. DOI: https://doi.org/10.1016/j.sbspro.2012.12.182

Keh, H. T.; Foo, M. D.; Lim, B. C. (2002). Opportunity evaluation under risky conditions: The cognitive processes of entrepreneurs. *Entrepreneurship: Theory and Practice,* 27(2), 125-148. DOI: https://doi.org/10.1111/1540-8520.00003

Kessler, A.; Frank, H. (2009). Nascent entrepreneurship in a longitudinal perspective: The impact of person, environment, resources and the founding process on the decision to start business activities. *International Small Business Journal,* 27(6), 720-742. DOI: https://doi.org/10.1177/0266242609344363

Kickul, J.; Gundry, L. (2002). Prospecting for strategic advantage: The proactive entrepreneurial personality and small firm innovation. *Journal of Small Bu siness Management,* 40(2), 85-97. DOI: https://doi.org/10.1111/1540-627X.00042

Knight, F. H. (2006). *Risk, uncertainty and profit*. New York: Dover Publications Inc.

Kobylinska, U. (2022). Attitudes, subjective norms, and perceived control versus contextual factors influencing the entrepreneurial intentions of students from Poland. *WSEAS Transactions on Business and Economics*, 19, 94-106. DOI: https://doi.org/10.37394/23207.2022.19.10

Kogan, N.; Wallach, M. A. (1964). *Risk taking: A study in cognition and personality*. New York: Holt Rinehart & Winston.

Kor, Y. Y.; Mahoney, J. T.; Michael, S. C. (2007). Resources, capabilities and entrepreneurial perceptions. *Journal of Management Studies*, 44(7), 1187-1212. DOI: https://doi.org/10.1111/j.1467-6486.2007.00727.x

Krueger, N. F. (1993). The impact of prior entrepreneurial exposure on perceptions and new venture feasibility and desirability. *Entrepreneurship: Theory and Practice*, 18(1), 5-21. DOI: https://doi.org/10.1177/104225879301800101

Krueger, N. F. (2000). The cognitive infrastructure of opportunity emergence. *Entrepreneurship: Theory and Practice*, 24(3), 5-24. DOI: https://doi.org/10.1177/104225870002400301

Krueger, N. F. (2003). The cognitive psychology of entrepreneurship. In Z. J. Acs; D. B. Audretsch (Eds.) *Handbook of entrepreneurship research*. (105-140). Boston: Springer. DOI: https://doi.org/10.1007/0-387-24519-7_6

Krueger, N. F. (2007). What lies beneath? The experiential essence of entrepreneurial thinking. *Entrepreneurship: Theory and Practice*, 31(1), 123-138. DOI: https://doi.org/10.1111/j.1540-6520.2007.00166.x

Krueger, N. F.; Brazeal, D. V. (1994). Entrepreneurial potential and potential entrepreneurs. *Entrepreneurship: Theory and Practice,* 18(3), 91-104. DOI: https://doi.org/10.1177/104225879401800307

Liñán, F.; Fayolle, A. (2015). A systematic literature review on entrepreneurial intentions: Citation, thematic analyses, and research agenda. *International Entrepreneurship & Management Journal*, 11(4), 907-933. DOI: https://doi.org/10.1007/s11365-015-0356-5

Liñán, F.; Rodríguez, J. C.; Rueda, J. M. (2011). Factors affecting entrepreneurial intention levels: A role for education. *International Entrepreneurship and Management Journal,* 7(2), 195-218. DOI: https://doi.org/10.1007/s11365-010-0154-z

Litzinger, W. D. (1963). Entrepreneurial prototype in bank management: A comparative study of branch bank managers. *Academy of Management Journal*, 6(1), 36-45. DOI: https://doi.org/10.5465/254875

Mancuso, J. (1975). The entrepreneurs' quiz. In C. Baumback; J. Mancuso (Eds.) *Entrepreneurship and venture management.* (32-40). Englewood: Prentice Hall.

Marques, C. S. ; Ferreira, J. ; Gomes, D. ; Gouveia, R. (2012). Entrepreneurship education: How psychological, demographic and behavioural factors predict the entrepreneurial intention. *Education + Training*, 54(8/9), 657-672. DOI: https://doi.org/10.1108/00400911211274819

Marulanda-Valencia, F. A.; Valencia-Arias, J. A.; (2019). Evolución y tendencias investigativas en autoeficacia emprendedora: un análisis bibliométrico. *Estudios Gerenciales*, 35(151), 219-232, DOI: https://doi.org/10.18046/j.estger.2019.151.3277

McClelland, D. C. (1961). *The achieving society*. Princeton: Van Norstrand Co. DOI: https://doi.org/10.1037/14359-000

McClelland, D. C. (1965). N achievement and entrepreneurship: A longitudinal study. *Journal of Personality and Social Psychology*, 1(4), 389-392. DOI: https://doi.org/10.1037/h0021956

Meoli, A.; Fini, R.; Sobrero, M.; Wiklund, J. (2019). How entrepreneurial intentions influence entrepreneurial career choices: The moderating influence of social context. *Journal of Business Venturing*, 35(3), 105982. DOI: https://doi.org/10.1016/j.jbusvent.2019.105982

Miner, J. B.; Raju, N. S. (2004). Risk propensity differences between managers and entrepreneurs and between low and high-growth entrepreneurs: A reply in a more conservative vein. *The Journal of Applied Psychology*, 89(1), 3-13. DOI: https://doi.apa.org/doi/10.1037/0021-9010.89.1.3

Ministerio de Educación de Chile. (2017). *Manual de apoyo a la trayectoria educativa para estudiantes de tercero y cuarto año de Educación Media Técnico-Profesional*. Santiago de Chile: MINEDUC. Available in https://bit.ly/3aX7TEt

Monreal, M. (2015). *Emprendedor cooperativo de trabajo asociado y teorías de emprendimiento. Análisis en las cooperativas creadas en la Comunidad Valenciana en el período 2008-2014* [Doctoral dissertation]. University of Valencia, Spain. Available in https://bit.ly/3b4j7af

Moriano, J. A.; Gorgievski, M.; Laguna, M.; Stephan, U.; Zarafshani, K. (2012). A cross-cultural approach to understanding entrepreneurial intention. *Journal of Career Development*, 39(2), 162-185. DOI: https://doi.org/10.1177/0894845310384481

Mothibi, N. H.; Malebana, M. J. (2019). Determinants of entrepreneurial intentions of secondary school learners in Mamelodi South Africa. *Academy of Entrepreneurship Journal*, 25(2), 1-14. Available in https://bit.ly/3b2VoY0

Muniz, J.; Suárez, J.; Pedrosa, I.; Fonseca, E.; García-Cueto, E. (2014). Enterprising personality profile in youth: Components and assessment. *Psicothema,* 26(4), 545-553.

Nguyen, A. T. ; Do, T. H. H. ; Vu, T. B. T. ; Dang, K. A. ; Nguyen, H. L. (2019). Factors affecting entrepreneurial intentions among youths in Vietnam. *Children and Youth Services Review*, 99, 186-193. DOI: https://doi.org/10.1016/j.childyouth.2019.01.039

Nicholson, N.; Soane, E.; Fenton-O'Creevy, M.; Willman, P. (2005). Personality and domain-specific risk taking. *Journal of Risk Research*, 8(2), 157-176. DOI: https://doi.org/10.1080/1366987032000123856

Noor, N. H. M.; Malek, E. N. (2021). An application of theory of planned behavior in determining student entrepreneurship intention. *Jurnal Intelek*, 16(1), 207-214. DOI: https://doi.org/10.24191/ji.v16i1.382

Nurdan, O.; Nancy, K. R. (2016). Entrepreneurial intention: Antecedents to entrepreneurial behavior in the USA and Turkey. *Journal of Global Entrepreneurship Research*, 6(1), 3. DOI: https://doi.org/10.1186/s40497-016-0047-x

Obschonka, M.; Hakkarainen, K.; Lonka, K.; Salmela-Aro, K. (2017). Entrepreneurship as a twenty-first century skill: Entrepreneurial alertness and intention in the transition to adulthood. *Small Business Economics*, 48(3), 487-501. DOI: https://doi.org/10.1007/s11187-016-9798-6

Orellana, W. E.; Martínez, J. (2013). Teorías de entrepreneurship y cooperativismo de trabajo asociado. Fundamentos teóricos y evidencias empíricas en la creación de CTA. *CIRIEC-España, Revista de Economía Pública, Social y Cooperativa*, (78), 11-33.

Otache, I.; Umar, K.; Audu, Y.; Onalo, U. (2021). The effects of entrepreneurship education on students' entrepreneurial intentions: A longitudinal approach. *Education + Training*, 63(7/8), 967-991. DOI: https://doi.org/10.1108/ET-01-2019-0005

Palamida, E. (2016). *Determinants of entrepreneurial intentions: The interrelated role of background, situational and psychological factors* [Doctoral dissertation]. Newcastle University Business School, England. Available in https://bit.ly/3MWklS8

Palich, L. E.; Bagby, D. (1995). Using cognitive theory to explain entrepreneurial risk-taking: Challenging conventional wisdom. *Journal of Business Venturing,* 10(6), 425-438. DOI: https://doi.org/10.1016/0883-9026(95)00082-J

Parker, S. K. (1998). Enhancing role breadth self-efficacy: The roles of job enrichment and other organizational interventions. *Journal of Applied Psychology*, 83(6), 835-852. DOI: https://doi.org/10.1037/0021-9010.83.6.835

Pérez, C. A.; Ubierna, F. (2021). The development of the entrepreneurial motivation from the university. *International Entrepreneurship and Management Journal*, 17(3), 1313-1334. DOI: https://doi.org/10.1007/s11365-020-00723-5

Popescu, C. C.; Bostan, I.; Robu, I. B.; Maxim, A.; Diaconu, L. (2016). An analysis of the determinants of entrepreneurial intentions among students: A Romanian case study. *Sustainability*, 8(8), 771-793. DOI: https://doi.org/10.3390/su8080771

Purwana, D.; Suhud, U.; Rahayu, S. (2017). Entrepreneurial intention of secondary and tertiary students: Are they different? *International Journal of Economic Research*, 14(18), 69-81.

Rahaman, M. A.; Luna, K. F.; Ping, Z. L.; Islam, M. S.; Karim, M. M. (2021). Do risk-taking, innovativeness, and proactivity affect business performance of SMES? A case study in Bangladesh. *The Journal of Asian Finance, Economics and Business*, 8(5), 689-695.

Ranga, V.; Jain, S.; Venkateswarlu, P. (2019). Exploration of entrepreneurial intentions of management students using Shapero's Model. *Theoretical Economics Letters*, 9, 959-972. DOI: https://doi.org/10.4236/tel.2019.94062

Rauch, A.; Frese, M. (2007). Born to be an entrepreneur? Revisiting the personality approach to entrepreneurship. In J. R. Baum; M. Frese; R. Baron (Eds.) *The psychology of entrepreneurship*. (41-65). New York: Lawrence Erlbaum Associates Publishers.

Ray, D. M. (1994). The role of risk-taking in Singapore. *Journal of Business Venturing,* 9(2), 157-177. DOI: https://doi.org/10.1016/0883-9026(94)90007-8

Rojas, G.; Siga, L. (2009). On the nature of micro-entrepreneurship: Evidence from Argentina. *Applied Economics*, 41(21), 2667-2680. DOI: https://doi.org/10.1080/00036840701335553

Rubio Gil, A. (2012). Juventud, emprendimiento y desarrollo: Nuevos nichos de mercado y yacimientos de empleo. *Revista de Estudios de Juventud*, (99), 35-51.

Salmony, F. U.; Kanbach, D. K. (2021). Personality trait differences across types of entrepreneurs: A systematic literature review. *Review of Managerial Science*, 16(3), 713-749. DOI: https://doi.org/10.1007/s11846-021-00466-9

Sánchez, J. C. (2012). Entrepreneurial intentions: The role of the cognitive variables. In P. T. Burger-Helmchen (Ed.) *Entrepreneurship-Born, made and educated*. (27-50). Rijeka: Intech Publishers.

Sánchez, J. C. (2013). The impact of an entrepreneurship education program on entrepreneurial competencies and intention. *Journal of Small Business Management*, 51(3), 447-465. DOI: https://doi.org/10.1111/jsbm.12025

Schlaegel, C.; Koenig, M. (2014). Determinants of entrepreneurial intent: A meta-analytic test and integration of competing models. *Entrepreneurship: Theory and Practice,* 38(2), 291-332. DOI: https://doi.org/10.1111/etap.12087

Selmi, I.; Haddad, S. (2013). Environmental determinants of entrepreneurship. In E. G. Carayannis (Ed.) *Encyclopedia of creativity, invention, innovation and entrepreneurship*. (682-686). New York: Springer. DOI: https://doi.org/10.1007/978-1-4614-3858-8_228

Shane, S.; Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1), 217-226. DOI: https://doi.org/10.2307/259271

Shapero, A.; Sokol, L. (1982). The social dimensions of entrepreneurship. In C. A. Kent; D. L. Sexton; K. H. Vesper (Eds.) *Encyclopedia of entrepreneurship*. (72-90). Englewood Cliffs: Prentice-Hall.

Simon, M.; Houghton, S. M. (2002). The relationship among biases, misconceptions and introducing pioneering products: Examining differences in venture decision contexts. *Entrepreneurship: Theory and Practice,* 27(2), 105-125. DOI: https://doi.org/10.1111/1540-8520.00002

Simon, M.; Houghton, S. M.; Aquino, K. (2000). Cognitive biases, risk perception, and venture formation: How individuals decide to start companies. *Journal of Business Venturing,* 15(2), 113-134. DOI: https://doi.org/10.1016/S0883-9026(98)00003-2

Smith, K. M.; Beasley, M. (2011). Graduate entrepreneurs: Intentions, barriers and solutions. *Education + Training*, 53(8), 722-740. DOI: https://doi.org/10.1108/00400911111185044

Soomro, B. A.; Lakhan, G. R.; Mangi, S.; Shah, N. (2020). Predicting entrepreneurial intention among business students of public sector universities of Pakistan: An application of the entrepreneurial event model. *World Journal of Entrepreneurship, Management and Sustainable Development*, 16(3), 219-230. DOI: https://doi.org/10.1108/WJEMSD-11-2019-0092

Soto, C.; John, O.; Gosling, S.; Potter, J. (2011). Age differences in personality traits from 10 to 65: Big five domains and facets in a large cross-sectional sample. *Journal of Personality and Social Psychology,* 100(2), 330-348. DOI: https://doi.org/10.1037/a0021717

Spector, P. E. (1982). Behavior in organizations as a function of employee's locus of control. *Psychological Bulletin*, 91(3), 482-497. DOI: https://doi.org/10.1037/0033-2909.91.3.482

Stam, E.; Spigel, B. (2016). Entrepreneurial ecosystems. *Discussion Paper Series*, Utrecht University, 16-13. Available in https://bit.ly/3b34aFn

Stam, E.; Van de Ven, A. (2019). Entrepreneurial ecosystem elements. *Small Business Economics*, 56(2), 809-832. DOI: https://doi.org/10.1007/s11187-019-00270-6

Stewart, W. H.; Roth, P. L. (2001). Risk propensity differences between entrepreneurs and managers: A meta-analytic review. *The Journal of Applied Psychology*, 86(1), 145-153. DOI: https://doi.org/10.1037/0021-9010.86.1.145

Stewart, W. H.; Watson, W. E.; Carland, J. C.; Carland, J. W. (1999). A proclivity for entrepreneurship: A comparison of entrepreneurs, small business owners, and corporate managers. *Journal of Business Venturing,* 14(2), 189-214. DOI: https://doi.org/10.1016/S0883-9026(97)00070-0

Suárez-Álvarez, J.; Pedrosa, I. (2016). Evaluación de la personalidad emprendedora: Situación actual y líneas de futuro. *Papeles del Psicólogo*, 37(1), 62-68. Available in https://bit.ly/3O0y8ZA

Tran, A. T. P. (2018). *Social entrepreneurial intention: An empirical study in Vietnam* [Doctoral dissertation]. University of Koblenz-Landau, Germany. Available in https://bit.ly/3b2DWmK

Tumasjan, A.; Welpe, I.; Spörrle, M. (2013). Easy now, desirable later: The moderating role of temporal distance in opportunity evaluation and exploitation. *Entrepreneurship: Theory and Practice*, 37(4), 859-888. DOI: https://doi.org/10.1111/j.1540-6520.2012.00514.x

Van Gelderen, M.; Brand, M.; Van Praag, M.; Bodewes, W.; Poutsma, E.; Van Gils, A. (2008). Explaining entrepreneurial intentions by means of the theory of planned behaviour. *Career Development International*, 13(6), 538-559. DOI: https://doi.org/10.1108/13620430810901688

Veciana, J. M.; Aponte, M.; Urbano, D. (2005). University students' attitudes towards entrepreneurship: A two countries comparison. *International Entrepreneurship and Management Journal*, 1(2), 165-182. DOI: https://doi.org/10.1007/s11365-005-1127-5

Volery, T.; Müller, S.; Oser, F.; Naepflin, C.; del Rey, N. (2013). The impact of entrepreneurship education on human capital at upper-secondary level. *Journal of Small Business Management*, 51(3), 429-446. DOI: https://doi.org/10.1111/jsbm.12020

Yalcintas, M.; Iyigün, O.; Karabulut, G. (2021). Personal characteristics and intention for entrepreneurship. *The Singapore Economic Review*, 66(3). DOI: https://doi.org/10.1142/S0217590821500338

Yan, J. (2010). The impact of entrepreneurial personality traits on perception of new venture opportunity. *New England Journal of Entrepreneurship,* 13(2), 21-35. DOI: https://doi.org/10.1108/NEJE-13-02-2010-B002

Yar Hamidi, D.; Wennberg, K.; Berglund, H. (2008). Creativity in entrepreneurship education. *Journal of Small Business and Enterprise Development,* 15(2), 304-320. DOI: https://doi.org/10.1108/14626000810871691

Zhao, H.; Seibert, S. E. (2006). The big five personality dimensions and entrepreneurial status: A meta-analytical review. *Journal of Applied Psychology,* 91(2), 259-271. DOI: https://doi.org/10.1037/0021-9010.91.2.259

Zhao, H.; Seibert, S. E. ; Lumpkin, G. T. (2010). The relationship of personality to entrepreneurial intentions and performance: A meta-analytic review. *Journal of Management,* 36(2), 381-404. DOI: https://doi.org/10.1177/0149206309335187