



UNIVERSITE CATHOLIQUE DE LOUVAIN

LOUVAIN SCHOOL OF MANAGEMENT

**THE MEDIATING EFFECT OF ENTREPRENEURIAL SELF-EFFICACY ON THE
RELATIONSHIP BETWEEN ACADEMIC GRADE AND ENTREPRENEURIAL
INTENTION**

Supervisor: Frank Janssen

Research Master Thesis submitted by

Charlotte van Caloen de Basseghem

With a view of getting the degree

Master in Business Engineering

ACADEMIC YEAR 2015-2016

I would like to take this opportunity to thank all the people who have contributed in some way to this thesis.

First of all, I would like to thank my supervisor, Mr. Janssen for his guidance and his support during the writing of the present research and, particularly all the time he awarded to me, his advice was really useful and appreciated.

My thanks also go to my friend André who gave me precious advice and put me on the right track in statistics as well as to my friend Julie who spent time to read over my final work.

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« It's not about ideas. It's about making ideas happen. »

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Introduction

Entrepreneurship is a field area that gained popularity through a large panel of disciplines such as psychology, management, sociology and economics (Hébert & Link, 1989). But what does entrepreneurship mean? And why is it important to include it in academic programs? Audrestch (2002) stated that the failure of determining a unique definition of entrepreneurship is probably due to the multidimensional aspect of the phenomenon. Klyver, Hindle and Meyer (2008) exposed two perspectives of the concept. The first one is addressed by Shane and Venkataraman (2000) and states that the essence of entrepreneurship is based on the discovery and exploitation of existing opportunities. Shane and Venkataraman (2000) highlighted the importance of disequilibrium in entrepreneurship by arguing that some people differed in the ability to recognize opportunities. Venkataraman (1997) and Corbett (2005) emphasized the importance of opportunities in the entrepreneurship field and attempted to discover the reasons why some individuals are more likely to perceive such opportunities. The second angle defines entrepreneurship as a process of venture creation. Wong, Ho, and Autio (2005) defined entrepreneurship as the intention to start a new firm and manage it. In this paper, entrepreneurship will be related to the process of starting a new business (Gartner, 1988).

Entrepreneurial activities are important drivers of economic growth as well as innovation (Bosma & Harding, 2006). Van Praag and Versloot (2007) indicated a higher contribution of entrepreneurship to job creation compared to well-established firms but they pointed out that the employment in these start-ups is less secure. Thurik and Wennekers (1999) argued that innovation and competition are factors incorporated in the concept of entrepreneurship and are the best intermediaries in the relationship between entrepreneurial activity and economic growth.

All these benefits for economic growth highlight the relevance of entrepreneurship education in building students' entrepreneurial skills and mindset for starting their own business (Elmuti, Khoury & Omran, 2012). This academic program developed itself quickly and gained attention all over the world (Kuratko, 2005). It has been

demonstrated the positive impact of such education on students' propensity to pursue an entrepreneurial career (Jones & al, 2008).

The aim of this study is to analyze the impact of academic grade on entrepreneurial intention, as well as the effects of entrepreneurial self-efficacy as an intervening variable in the academic grade-intention relationship. The paper is organized as follows: first, a quick definition of our variables of interest is presented, and then the entrepreneurial literature will be reviewed. Our hypotheses will be described in the latter. After defining the methodology used, the results of our analysis will be discussed and some suggestions for future research directions as well as implications will be presented.

Chapter 1: Literature review

1.1. Definition of the three concepts

1.1.1. Entrepreneurial intention

In this paper, entrepreneurial intentions will be used to predict the decision of an individual to become an entrepreneur. Krueger, Reilly and Carsrud (2000) affirmed that entrepreneurial activity is a planned behavior whose best predictor is intention. Indeed, Bagozzi, Baumgartner and Yi (1989) advocated intention as the best factor explaining entrepreneurial behavior and pointed out the mediating effect of intention in the relationship between attitudes and the act of creating one's own business. Attitudes are influenced by external elements such as demographic, personality traits or situational factors and these latter ones can have a moderate effect on the intention-behavior relationship (Krueger & Carsrud, 1993).

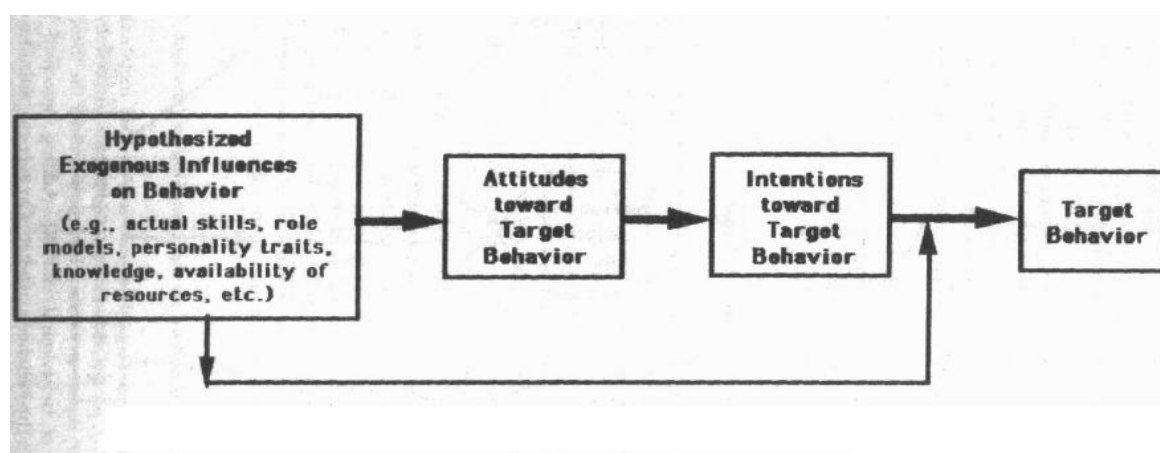


Figure 1: The intention-based model (Krueger, & Carsrud, 1993)

Entrepreneurial intention can be defined as one's perception of the likelihood of owning one's own business (Crant, 1996). Kautonen, Gelderen and Tornikoski (2013) tested the relationship between intention and entrepreneurial behavior where intention was explained by the theory of planned behavior. Attitudes explained 41% of the variance in intention and intention accounted for 39% of the behavior variable's variance.

1.1.2. Entrepreneurial self-efficacy

Self-efficacy is defined as one's perception of capability to perform a task and will predict the level of effort and persistence one will deploy to overcome difficulties related to the achievement of the task (Bandura, 1997). This concept has become important in the understanding of someone's intention to start a new business. According to Wood and Bandura (1989), self-efficacy impacts on behavioral choices and thus individuals will engage in situations where they perceive a high control over the outcomes and will avoid the situations where they feel they possess a low amount of control on them. The term "self-efficacy" has been defined by Chen, Greene and Crick (1998, p. 301) in the entrepreneurial context as "the strength of a person's belief that he or she is capable of successfully performing the various roles and tasks of entrepreneurship". The effects of entrepreneurial self-efficacy on entrepreneurial intention are positive and significant (Zhao, Seibert & Hills, 2005).

Kickul and D'Intino (2005) analysed the critical role of self-efficacy in the central competences specific to the four stages of entrepreneurial life-cycle. The four phases are the following: searching, planning, marshalling and implementing. The process of venture creation begins with the **searching** phase where the entrepreneur develops an idea and/or an opportunity. Afterwards, the entrepreneur must transform his/her idea into a feasible plan and analyses the different aspects related to the idea (**planning** phase). In order to bring the project to market, the founder needs to collect all the resources required for the venture creation such as financial support or labor force (**marshalling** stage). The final phase is the **implementation** where the entrepreneur executes all the activities indispensable to guarantee the survival of the new firm created and possesses the appropriate skills (McGee, Peterson, Mueller & Sequeira, 2009).

Through the six dimensions of entrepreneurial self-efficacy developed by De Noble, Jung, and Elhrlich (1999), namely "risk and uncertainty management skills", "innovation and product development skills", "interpersonal and networking management skills", "opportunity recognition", "procurement and allocation of critical resources", and "development and maintenance of an innovative environment", and incorporating the five entrepreneurial self-efficacy factors submitted by Chen and al (1998) (marketing,

innovation, management, risk-taking, and financial control, respectively), Kickul and D'Intino (2005) proposed a model that identifies the critical tasks at every stage of the entrepreneurial life-cycle.

The new model (Kickul & D'intino, 2005) indentified 10 tasks allocated to the four phases. The *searching phase* is characterised by two tasks: conception of a unique idea for a business and identification of market opportunities for a new business. The second one, *planning*, consists of two tasks: planification of a new business and the writing of a formal business plan. The *marshalling phase* is represented by four tasks: raise money to start the new venture, convince others to invest in your business, convince a bank to lend you money to start a business, and convince others to work for you in your new business. The final stage, *implementation*, regroups two tasks: the management of a small business, and the growth of a successful business.

Many researchers (Bae, & al, 2014; Boyd, & Vozikis, 1994; Shkullaku, 2013; Zhao & al, 2005) used Bandura's Social Cognitive Theory (1988) to define the sources of entrepreneurial self-efficacy. The four mechanisms are the following: 1) enactive mastery, 2) role modeling and vicarious experience, 3) social persuasion, and 4) psychological state. The strongest predictor of entrepreneurial self-efficacy is mastery experiences, especially past performance successes (Wood & Bandura, 1989). Gist (1987) pointed out the possible effect of past performance feedback on current self-efficacy. However, Bandura (1988) highlighted the danger of experimenting only success in entrepreneurship and pointed out the importance of overcoming obstacles through efforts and perseverance in building a robust perception of one's own abilities. The second antecedent of self-efficacy is the indirect experience that individuals receive from role modeling by comparing their capabilities to these role models (Wood & Bandura, 1989). The third source impacting one's beliefs in his or her own abilities, social persuasion, highlights the importance of realistic encouragements (Bandura, 1988) and performance feedback on self-efficacy (Gist & Mitchell, 1992). However, Wood and Bandura (1989) pointed out the potential risk related to unrealistic levels of self-efficacy on future beliefs of one's capabilities. Moreover, a wise evaluation of the person influencing an individual's self-efficacy in terms of credibility, expertise, trustworthiness, and prestige is crucial (Bandura, 1977). The last variable exercising an influence on self-efficacy is someone's perception of his or her emotional state (Boyd &

Vozikis, 1994). People view their emotional arousal and tension as indicators of vulnerability to poor performance (Bandura, 1988). For instance, anxiety can be seen as problematic and consequently reduces one's perceptions of one's own capabilities (Stumpf, Brief & Hartman, 1987). Three types of factors can impact someone's judgement of one's own capacity: physical, personality traits and mood factors (Gist & Mitchell, 1992). One way to modify self-perceptions in a positive direction is to reduce the level of stress and control the mood effects (Wood & Bandura, 1989).

1.1.3. Entrepreneurship education

The number of entrepreneurial education programs set up in universities has increased considerably all over the world (Kuratko, 2005). But what does this academic program consist of? Fayolle, Gailly and Lassas-Clerc (2006, p. 702) defined entrepreneurship education as "a pedagogical programme or process of education for entrepreneurial attitudes and skills, which involves developing certain personal qualities". Different types of entrepreneurial education training exist (Liñán, 2004) but in this paper, the focus will be on the one that is based on the awareness of the students with no experience in self-employment (Bae, Qian, Miao & Fiet, 2014) because the research of this paper is concentrated on university students. According to Liñán (2004), this kind of education increases students' perception of an entrepreneurial career as an alternative to classic employment. Since there are a large number of institutions offering entrepreneurship programs, determining all the courses related to these programs is impossible (Alberti, Sciascia & Poli, 2004). However, Vesper (1999) identified 4 groups of knowledge useful to become an entrepreneur.

- ✓ The first one is **business-general knowledge** that contains all the disciplines related to the management of a new or already established enterprise such as accounting or finance.
- ✓ The second category is **venture-general knowledge** that is specific to the venture context. Courses dealing with this knowledge help future entrepreneurs to learn how to access the resources needed for a new venture, to cope with the difficulties at the early stage of venture creation.
- ✓ The third category, **opportunity-specific knowledge** teaches how to find an opportunity and exploit it.

- ✓ The last one is **venture-specific knowledge** that trains students how to create a specific product or service.

The reason why the content of entrepreneurship education courses is not homogeneous across all the establishments offering it may reside in the fact that entrepreneurship remains an emerging field (Solomon, Duffy & Tarabishy, 2002).

1.2. Entrepreneurial behavior factors

Psychologists have for a long time argued that entrepreneurs possess certain personal characteristics explaining their behavior towards new venture creation (Chell, 2008). Among these personality traits, we can enumerate the following: risk taking (Singh & Rahman, 2013), innovation (Carland, Hoy, Boulton & Carland, 1984), need for achievement (McClelland, 1961), self-efficacy (Chen & al, 1998) and opportunity recognition (Markman & Baron, 2003). Many authors indicated the positive link between personality traits and entrepreneurial behavior (Obschonka, Silbereisen & Schmitt-Rodermund, 2012; Rauch & Frese, 2000; Zhao, & Seibert, 2006). Rauch and Frese (2007) reported that need for achievement, general self-efficacy, innovativeness and proactive personality are strongly related to entrepreneurial behavior. Korunka, Hermann, Lueger, and Mugler (2003) tested the impact of three important personality traits respectively: need for achievement, internal locus of control and risk-taking propensity, on an individual's decision to start a new business and reported substantial results. A high need for achievement is typical to the entrepreneur personality and is seen as a preference for challenging tasks with a certain level of difficulty ranging from moderate to very difficult. In addition, the person feels responsible for his or her performance and continually seeks performance improvement (Rauch & Frese, 2000).

However, a multitude of studies have discredited this assumption (e.g. Ajzen, 1987; Gartner, 1988). The personality approach was criticized because of its assumption that an average entrepreneur exists and presents the same entrepreneurial characteristics (Ajzen, 1987). But, Gartner (1985) indicated the high diversity among entrepreneurs and venture creations and suggested that these differences could be greater than the distinction between entrepreneurs and non-entrepreneurs. The most important critic of the personality traits approach is the static aspect that goes against the dynamic concept of entrepreneurship (Cope, 2005). Moreover, the use of personality traits induces that

such characteristics distinguishing entrepreneurs from the non-entrepreneurs are constant and are not influenced by experience or any situations. However, innovativeness and internal locus of control which are two characteristics specific to entrepreneurship, are not necessary innate and can be developed through work experience, education or other factors (Mueller & Thomas, 2000).

A large amount of researchers studied the relationship between demographic factors and entrepreneurial behavior (Arenius, & Minniti, 2005; Bird, 1993; Reynold, Storey & Westhead, 1994). The demographic explanation model suggests that behavior, and in this case entrepreneurial behavior, is affected by life experiences in a direct and indirect way and therefore, some use these experiences in a better way than others (Bird, 1993). The most tested demographic variables are gender (Wilson, Kickul & Marlino, 2007), age (Levesque & Minniti, 2006), previous job experience (Morris & Lewis, 1995), education (Crant, 1996), and family background (Matthews & Moser, 1996). Arenius and Minniti (2005) found that age and gender have a significant and negative relationship with entrepreneurship, meaning that the probability to start a new firm decreases with age and men are more inclined to entrepreneurial activity than women. Wagner and Sternberg (2004) stated the importance of geographical factors, in other words, individuals living in regions with a high population density (urban cities) are more likely to choose a self-employment orientation than those who live in rural areas.

Despite the significant results associated with the use of demographic factors, Robinson and al (1991) underlined the static side inherent in this approach (just like the personality trait model) that excludes any change from experiences as well as its indirect influence on an individual's decision to become self-employed. Katz (1992) highlighted the unclear impact of family background or other role models on the decision to become an entrepreneur and the non-applicability of this factor for situations where the person does not follow the same career path as his or her parents. Robinson and al (1991) reinforced that statement by giving the following example: two individuals born and raised in a virtually identical family environment may develop different perceptions of entrepreneurial behavior. Indeed, one kid may be convinced that self-employment is an exciting and valuable vocation and the other kid may consider entrepreneurship as the only option for those who cannot hold a stable job. Robinson and al (1991) concluded that individuals are affected by a large number of

variables (in the above example, the two children differ in their perception of entrepreneurship even though they share the same experience) and consequently, the prediction of the entrepreneurial behavior is a complex structure that cannot be explained exclusively by one type of variable such as demographic elements including sex, race and birth order. Finally, Rychlak (1981) reported that demographic factors such as gender, sex or birth order are not indicators of future actions but instead, these actions are strongly impacted by the reaction to specific circumstances.

Then, an attitudinal approach emerged in the continuous search for entrepreneurial behavior prediction (Florin, Karri & Rossiter, 2007; Robinson & al, 2001; Shariff & Saud, 2009). Ajzen (1989) defined attitude as someone's inclination to respond in a favorable or unfavorable manner to an object, an individual, an institution or an event. Attitudes are presumed to be stable but they are influenced by time and context (Schwarz & Bohner, 2001). This instability makes attitude a dynamic concept that interacts with the environment and is therefore suitable for the entrepreneurship field (Robinson & al, 1991). Robinson and al (1991) created a new model based on past research examining differences between entrepreneurs and non-entrepreneurs according to their personality traits and integrated 4 elements: need for achievement, internal locus of control, self-esteem and innovation. They created 4 parameters to measure attitudes: "achievement in business", "innovation in business", "perceived personal control of business outcomes" and "perceived self-esteem in business". Tamizharasi and Panchanatham (2010) followed the path of Robinson and al (1991) in the attitudinal approach to entrepreneurship. They tested the relationship between entrepreneurial attitudes and demographic variables and reported that age and income are significantly correlated with entrepreneurial attitudes.

However, the attitude-behavior relationship has been criticized for its weak and/or non-significant results (Ajzen, 1987). According to Ajzen and Fishbein (1977), intention to perform a specific behavior determines this behavior in question and attitudes influence intention. Bird (1988, p.442) defined intentionality as "a state of mind directing a person's attention toward a specific object (goal) or a path in order to achieve something (means)". Krueger (2000) stated that intention represents one's belief that he or she will execute the behavior, the belief that an action will be taken and thus, intention

anticipates the behavior. In next section, the measure of entrepreneurial intention is tackled.

1.3. Measurement of entrepreneurial intention

Most of human behaviors are planned and occupational decisions are undoubtedly planned in nature; since creating one's own business is seen as a career path, it is easy to define entrepreneurial behavior as planned (Krueger & al, 2000). The two most applied models in predicting entrepreneurial intention are Shapero and Sokol's model (1982) of the entrepreneurial event (SEE) and Ajzen's theory of planned behavior (Ajzen, 1991).

1.3.1. Theory of planned behavior

Ajzen (1991) reported the indirect influence of attitudes and personality traits on entrepreneurial action through intention, whose effect on entrepreneurial decision is direct. In this way, the first model, the Theory of Planned Behavior (represented in figure 2 below), is composed of three factors related to attitudes that explain the intention: attitude toward the act, subjective norms and perceived feasibility. The three components are described below.

- ✓ Attitude toward the behavior: this element refers to the desirability of a person to perform a particular action (Krueger & al, 2000). In other words, the individual evaluates to what extent is the status of entrepreneur positive or negative for him or her (Autio, Keeley, Klofsten, Parker & Hay, 2001). According to Ajzen (1991), the attitude toward a certain act is dependent on someone's belief in the outcome associated with the behavior.
- ✓ Subjective norm: is associated with the social pressure individuals perceive regarding the execution of a specific conduct (Liñán & Chen, 2009). Specifically, it is the perception of the judgement of important persons about that particular behavior (Ajzen, 1991). Krueger and al (2000) pointed out the possible effect of role models as well as mentors in the group of social influences. However, the variable "internal locus of control" moderates the subjective norm-intention relationship with a high internal locus of control weakening the effects of social pressure (Ajzen, 1987).

- ✓ Perceived behavioral control: is translated as the perceived ease or difficulty to take on the role of entrepreneur (Liñán & Chen, 2009). This concept is widely associated with the term self-efficacy developed by Bandura (1997) in his social cognitive theory and is similar to the notion of perceived feasibility presented by Shapero and Sokol (1982) that will be developed later.

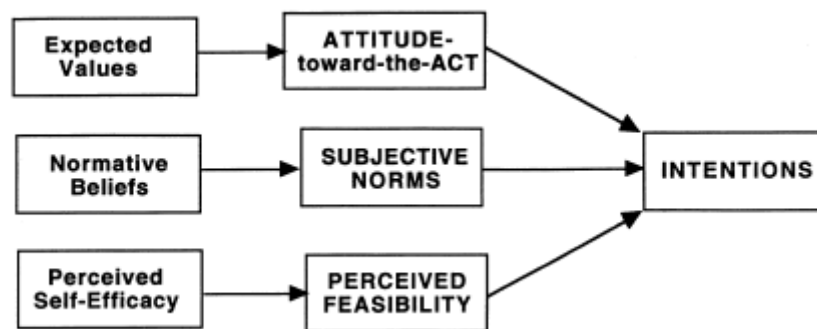


Figure 2: Ajzen's Theory of Planned Behavior (Krueger & al, 2000)

Many studies have proven the pertinence of the model despite some contradictions that may be due to what Chandler and Lyon (2001) called “measure issues” (Liñán & Chen, 2009). Armitage and Conner (2001) confirmed the explanatory power of the theory of planned behavior in entrepreneurial intention with their meta-analytic review and pointed out the double impact of the variable “perceived behavioral control” (PBC) in the intention-behavior relationship. Indeed, PBC influences, directly and indirectly, the behavior. Despite the significance of the model, the component “subjective norm” showed a weak contribution to the variance in intention (Autio & al, 2001; Gird & Bagraim, 2008; Segal, Borgia & Schoenfeld, 2005).

1.3.2. The Entrepreneurial Event

In this model, intent to create a new venture emanates from three elements: perceived desirability, perceived feasibility and propensity to act (Krueger & al, 2000). They are defined below:

- ✓ Perceived desirability: is interpreted as someone's attractiveness to the decision of starting one's own business (Iakovleva & Kolvereid, 2009) and includes internal and external influences (Krueger & al, 2000). It is expected that the more

desirable the venture is, the more likely the person will grow intentions to create a new business and the more robust the intention will be (Meeks, 2004).

- ✓ Perceived feasibility: is defined as the extent to which one considers oneself capable of starting a business (Krueger & al, 2000).
- ✓ Propensity to act: is, according to Shapero, regarded as the predisposition of someone to take action based on his or her decisions and is considered as the volitional facet of intentions summarized in this sentence: "Will I actually do it?"(Krueger, 1993).

According to Shapero's model (1982), human beings are guided by inertia in their behavior until something breaks or displaces that routine. Displacement is often viewed in a negative way such as job loss but it can be positive like receiving an inheritance. This event provokes a quick change in the behavior and the decision-maker has no choice but to find the best opportunity available among a series of alternatives (Katz, 1992). The choice of the alternative results from the relative analysis of the decision-maker of each possible behaviour and its relative credibility. Credibility requires that all the possible behaviors be perceived as desirable as well as feasible. In addition, some propensity to act is added to ensure that the decision-maker takes the action (Krueger & Brazeal, 1994; Krueger & al, 2000). In brief, the entrepreneurial event model states that the potential to start a new business (credibility and propensity to act) must exist before the displacement occurred and that the person has a propensity to act afterwards (Shapero, 1982).

Similar to the Theory of Planned Behavior, Shapero's model postulates that external factors do not impact intentions or behavior in a direct way but through attitudes (e.g. perceived desirability, perceived feasibility and propensity to act) (Krueger & Brazeal, 1994). Shapero demonstrated the critical importance of perceptions in this process. Significant life events (such as job loss, migration, etc.) can accelerate the increase of entrepreneurial activity. Such events do not affect the person itself but rather their perception of the "new" circumstances. It is obvious that their entrepreneurial potential was always part of themselves, but a displacement was needed to trigger it (Krueger & al, 2000). A representation of the model is drawn in figure 3 below.

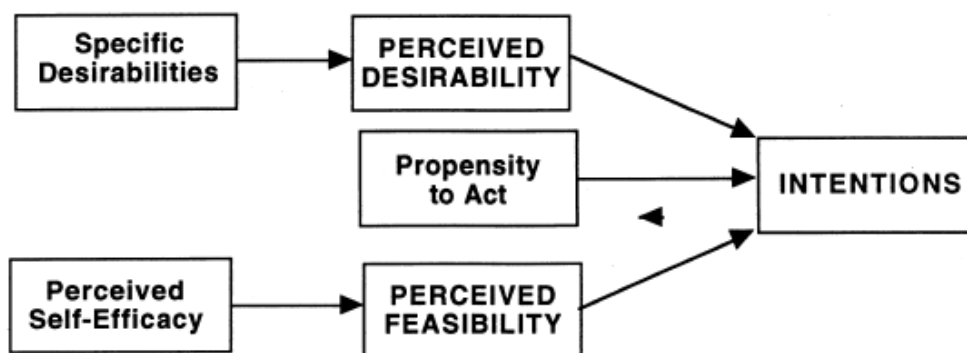


Figure 3: Shapero-Krueger model (Krueger & al, 2000)

1.4. Comparison of the two models

Audet (2004) and Krueger (1993) tested the explanatory power of Shapero and Sokol's model (Audet excluded the variable "propensity to act" in his analysis) and found significant results. Audet (2004) reported that perceived desirability and perceived feasibility variables accounted for 49% of the variance in long-term intention to start a new venture. Krueger (1993) test results showed that the three components of the Entrepreneurial Event model explained more than the half of the variance in intention. In addition, Krueger (1993) reported the influence of past entrepreneurial experiences on perceived feasibility and the effects of positive experiences on perceived desirability.

Moreover, Liñán and Chen (2006) pointed out the effects of subjective norms on perceived desirability and perceived feasibility. Other authors (Cooper, 1993; Mathews & Moser, 1995; Scherer, Brodzinski & Wiebe, 1991) reported the impact of important referents judgement on someone's attractiveness to start a new venture as well as on his or her beliefs of having the capacities to engage in entrepreneurial activities.

Krueger and al (2000) compared the two models and detected similarities. First of all, perceived behavioral control in the theory of planned behavior (TBC) and perceived feasibility in Entrepreneurial Event (SEE) both refer to Bandura's self-efficacy (1989). Indeed, self-efficacy was previously described as one's belief that he or she has the abilities to perform a specific task (Bandura, 1977). Secondly, the two first components of TBC (Ajzen, 1991), namely "attitude toward the act" and "subjective norm" are related to Shapero's element "perceived desirability (Krueger, & al, 2000). Although the two

intention constructs are really similar, the antecedent “propensity to act” is only found in Shapero’s model and replaces “subjective norm” in the other one (Autio & al, 2001). Wagner’s findings (2004) showed that only a part of nascent entrepreneurs entered in the first phase of business creation. This statement is in accordance with Krueger and al’s (2000) point of view that one can have the entrepreneurial potential but never engages oneself in the new venture activity. Krueger (1993) and Krueger and al (2000) reported in their analysis the superiority of the Shapero and Sokol model in its explanatory power of entrepreneurial intention.

Following the work of Krueger and al (2000) in their comparison between Ajzen’s Theory of Planned Behavior (1977) and Shapero & Sokol’s Entrepreneurial Event (1982), Iakovleva and Kolvereid (2009) tried to integrate both intention-based models into an unique construct explaining the entrepreneurial intention. They proposed the following model: Attitude, subjective norms and perceived behavioral control influence intentions through perceived desirability and perceived feasibility (see figure 4 below).

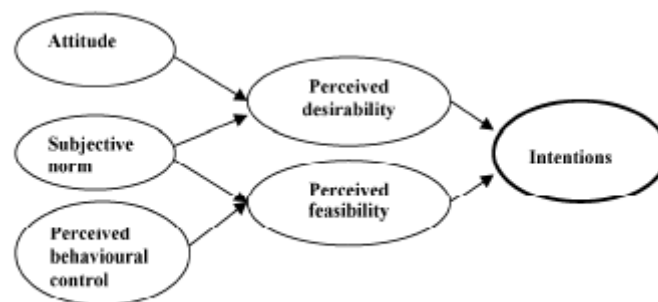


Figure 4: The integrated model of Iakovleva & Kolvereid

Results showed that the three components of TPB significantly explained the desirability and feasibility variables. Finally, the authors indicated that the inclusion of desirability and feasibility variables as mediators of the relationship between the TPB components and entrepreneurial intention gave a significant explanatory power of the new model of 65.3%. In this present paper, entrepreneurial intention will be explained through the three elements of Bandura’s theory of planned behavior (1987) due to its large application in studies of the entrepreneurial intention (Bodewes, Poutsma, & van Gils, 2008; Gird, & al, 2008; Kautonen, van Gelderen, & Fink, 2015; Krueger & Carsrud, 1993; Liñán, & Chen, 2009; Souitaris, & al, 2007; van Gelderen, Brand, van Praag, Shook &

Bratianu, 2010). Armitage and Conner (2010) undertook a meta-analytic review of 185 studies that predicted entrepreneurial behavior and intention by means of the theory of planned behavior (TPB). They reported that TPB explained 27% and 39% of the variance in behavior and intention, respectively.

1.5. Entrepreneurial self-efficacy as an important factor

The analysis of various antecedents of entrepreneurial intention brought out a crucial factor in explaining the intent to become an entrepreneur: entrepreneurial self-efficacy, defined previously as “the strength of a person’s belief that he or she is capable of successfully performing the various roles and tasks of entrepreneurship” (Chen & al, 1998, p. 301). Many studies (Autio & al, 2001; Boyd & Vozikis, 1994; Malebana & Swanepoel, 2014; Zhao & al, 2005) showed its superior contribution to the variance in entrepreneurial intention. Moreover, Krueger and al (2000) in their comparison of the two models, respectively TPB and SEE, proved that perceived behavioral control (Ajzen’s TPB component) and perceived feasibility (Shapero & Sokol’s SEE element) are both significantly correlated to entrepreneurial self-efficacy and are strong predictors of entrepreneurial intention. This concept gained importance among researchers and many of them tested its predictability power on intention to start a new venture (Boyd & Vozikis, 1994; Naktiyok, Karabey & Gulluce, 2010) and in particularly its mediating effect in the relationship between entrepreneurship education and entrepreneurial intention (Malebana & Swanepoel, 2014; Oyugi 2015; Shinnar, Hsu & Powell, 2014; Zhao & al, 2005). The studies on the mediating role of self-efficacy demonstrated the importance of academic programs in the entrepreneurship field.

Since the failure of both personality traits and demographic factors models, the idea that entrepreneurs are made, not born appeared and introduced the concept of entrepreneurial education as a vehicle to shape students’ entrepreneurial intentions and skills (Rodrigues, Dinis, Do Paço, Ferreira & Raposo, 2012).

Many studies (Bae & al, 2014; Fayolle & al, 2006; Kolvereid & Moen, 1997; Malebana & Swanepel, 2014; Oyugi, 2015; Souitaris, Zerbinati & Al-Laham, 2007) have analyzed the impact of entrepreneurship education on entrepreneurial intention. Bae and al (2014) exposed two points that highlight the importance of such entrepreneurial programs. The first one is the human capital theory introduced by Becker (1975) which has been

adapted for the entrepreneurship field. This theory can be defined as “skills and knowledge that individuals acquire through investments in schooling, on-the-job training, and other types of experience” (Unger, Rauch, Frese, & Rosenbusch, 2011, p. 343). Human capital theory postulates that knowledge, skills, and other abilities related to individuals or groups are linked to performance outcomes and the higher they are, the greater the outcomes (Ployhart & Moliterno, 2011). Martin and al (2013) found significant support for the relationship between entrepreneurship education and entrepreneurial outcomes such as entrepreneurship-related knowledge and skills, positive perceptions of entrepreneurship and entrepreneurial intention.

Secondly, entrepreneurship education is associated with entrepreneurial self-efficacy through the impact of the formal learning variable on one's beliefs that he or she possesses the abilities to perform entrepreneurial tasks (Zhao & al, 2005). Particularly, this academic training can improve considerably entrepreneurial self-efficacy through its four principal components (as described above in the entrepreneurial self-efficacy section): enactive mastery, vicarious experience, verbal persuasion, and emotional arousal (Bandura, 1988). Malebana and Swanepoel (2014) investigated the entrepreneurial self-efficacy score among students exposed to 3 different levels of exposure to entrepreneurship program: zero exposure, 6 months and 3 years. The results showed that the scholars with three years of exposure to entrepreneurship education have stronger entrepreneurial self-efficacy compared to the two other groups.

Provided that entrepreneurial self-efficacy has a stronger effect on entrepreneurial intention than an entrepreneurship program has (Oyugi, 2015) and that entrepreneurship education is strongly related to self-efficacy (Zhao & al, 2005), it seems useful to examine how this type of education can impact students' beliefs that they are capable of performing entrepreneurial tasks. According to Blackford, Sebora and Whitehill (2009), entrepreneurial educators have the potential to improve students' self-confidence by showing them they possess the ability to start a new venture. Entrepreneurial education provides activities such as feasibility analysis, development of a business plan or simulation of real business cases that can potentially affect positively students' self-confidence in their ability to successfully execute entrepreneurial roles and tasks (Wilson, Kickul & Marlino, 2007).

The first element of the entrepreneurial self-efficacy concept is *enactive mastery*. This component can be enhanced with courses composed of realistic entrepreneurship business cases (Erikson, 2002) as well as an apprenticeship in new venture creation of a sufficient length (Aronsson, 2004). The second element, *vicarious experience*, is usually exploited by entrepreneurial academic programs by means of guest speakers invited during class sessions (Wilson, Kickul & Marlino, 2007). Indeed, role models play an important role in building one's self-efficacy by giving examples of success stories to people interested in entrepreneurship (Wood & Bandura, 1989). The third item, *verbal persuasion*, can boost self-efficacy through feedback and, specifically, by grading students' projects in entrepreneurship courses and entrepreneurial educators can advise them regarding their future job. The last one, *psychological state*, can be improved by entrepreneurship training through lessons where the students are exposed to typical lifestyles and working habits of successful entrepreneurs in order to push them to develop strategies to cope with stress and life changes related to the entrepreneurial career (Zhao & al, 2005). Stumpf and al (1987) stated that individuals' psychological well-being is directly affected by the way they cope with the stressful events associated with their job. These coping strategies will help to maintain motivation and control anxiety in order to perform successfully.

In addition to influencing positively students' self-efficacy, entrepreneurial education reduces gender gap by playing the role of equalizer (Wilson & al, 2007). Indeed, many studies showed that entrepreneurship is a male field (Díaz-García & Jiménez-Moreno, 2010; Gupta, Turban, Wasti & Sikdar, 2010; St-Jean, Nafa, Tremblay, Janssen, Baronet & Loué, 2014). However, culture has been proved to be an influential factor in entrepreneurship (Davidsson, 1995; Pruett, Shinnar, Toney, Llopis & Fox, 2009; Shinnar & al, 2012) and consequently, universities should create country-specific entrepreneurship programs (Lee, Lim, Pathak, Chang & Li, 2006).

1.6. Previous research on factors influencing entrepreneurial intention

Several authors tried to demonstrate the relationship between entrepreneurial intention and personality traits (Frank, Lueger & Korunka, 2007; Peng, Lu & Kang, 2012; Zhao, Seibert & Lumpkin, 2010;). Tong, Tong and Loy (2011) stated the positive and significant effect of need for achievement on entrepreneurial intention. Rajiman (2001)

reported the positive impact of risk propensity on the entrepreneurial intention of Mexican immigrants. However, these personal predictors showed weak and/or insignificant relationships with the intent to start a new venture (De Pillis & Reardon, 2007; Shaver & Scott, 1991). Liñán and Chen (2009) reported the influence of individual characteristics on antecedents of entrepreneurial intentions and thus their indirect effect. When the relationship between these personal factors and the intention variable was examined, an insignificant result emerged from the analysis.

Later, other researchers attempted to prove the relationship between demographic factors and entrepreneurial intention (Franco, Haase & Lautenschläger, 2010; Kothari, 2013; Liñán, Rodríguez-Cohard & Rueda-Cantuche, 2011; Mazzarol, Volery, Doss & Thein, 1999; Yaghmaei & Ghasemi, 2015). Khan, Ahmed, Nawaz and Ramzan (2011) found that past experience and family exposure to entrepreneurship had a significant impact on individuals' intention to start a new business. Boyd and Vozikis (1994) emphasized the importance of experience in shaping entrepreneurial self-efficacy that in turn has a positive and significant relationship with entrepreneurial intention (Oyugi, 2015). Shinnar, Giacomini and Janssen (2012) confirmed the assumption that gender impacts on entrepreneurial intention with male individuals more inclined to become entrepreneurs than female ones. Liñán and al (2011) pointed out the role of education and especially entrepreneurial programs on influencing students' decision to pursue an entrepreneurial career.

However, many studies (Franco & al, 2010; Gird & Bagraim, 2008; Liñán & Chen, 2009) showed that the relationship between demographic factors and entrepreneurial intention is weak and/or insignificant. Several researchers (Krueger & al, 2000; Robinson, Stimpson, Huefner & Hunt, 1991; Veciana, Aponte & Urbano, 2005) criticized the use of demographic factors. Krueger and Carsrud (1993) indicated the influence of such exogenous factors on the relationship between intention and behavior and thus the **indirect** impact on entrepreneurial behavior.

Chapter 2: The impact of academic grade on the entrepreneurial intention and the mediating role of entrepreneurial self-efficacy

2.1. Literature review

Although demographic factors were found to have a weak influence on entrepreneurial intention, very few studies tested the possible effect of academic grade on one's intent to become an entrepreneur and most of the time mitigated results were performed. Intelligence quotient has been analyzed in other fields but in the entrepreneurship area, it is understudied (Shrader & Finkle, 2015). This leads to the first hypothesis:

- *H1: There is a positive significant relationship between students' college grade and students' entrepreneurial intention.*

Hypothesis 1:

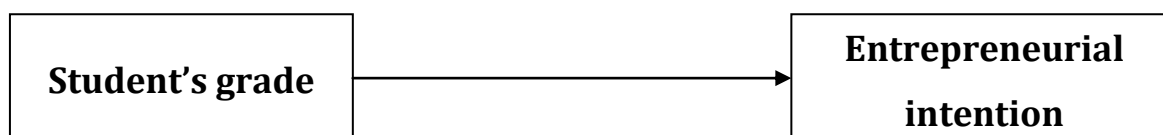


Figure 5: relationship between student's grade and entrepreneurial intention

Shrader and Finkle (2015) tested if college entrance exam scores of students that had been entrepreneurs and those who had not been entrepreneurs differed and if a distinction exists between these two types of students regarding their grade point average. Students who had been entrepreneurs showed slightly lower college entrance scores than those who had not been entrepreneurs but when it came to their grade point average (GPA), no difference was found.

Farzaneh and al (2010) examined the influence of several personal factors on entrepreneurship and particularly, the grade point average of students chosen randomly from the Islamic Azad University. The authors reported that GPA was a low predictor of entrepreneurship. Onyebu (2015) indicated a negative and insignificant relationship between cumulative grade point average and entrepreneurial skills and suggested that

the students possessing entrepreneurial skills may not be the good students. Summit COUNSULTING LLC (2009) confirmed that statement by demonstrating the insignificant link between academic achievement and participation in entrepreneurship. In this study, we will see if our results confirm these previous statements or on the contrary, show a positive significant association between the academic grade and the entrepreneurial intention.

Secondly, entrepreneurial self-efficacy has shown its substantial influence on entrepreneurial intention (Boyd & Vozikis, 1994) as well as its significant mediating effects on intent to start a new venture (Zhao & al, 2005). For this reason, it seemed interesting to analyze the potential effect of entrepreneurial self-efficacy in the student's grade-entrepreneurial intention relationship through a single-mediator model (see figure 6 below). The second hypothesis is formulated as follows:

- *H2: does entrepreneurial self-efficacy mediate the relationship between student's grade and entrepreneurial intention?*

Hypothesis 2:

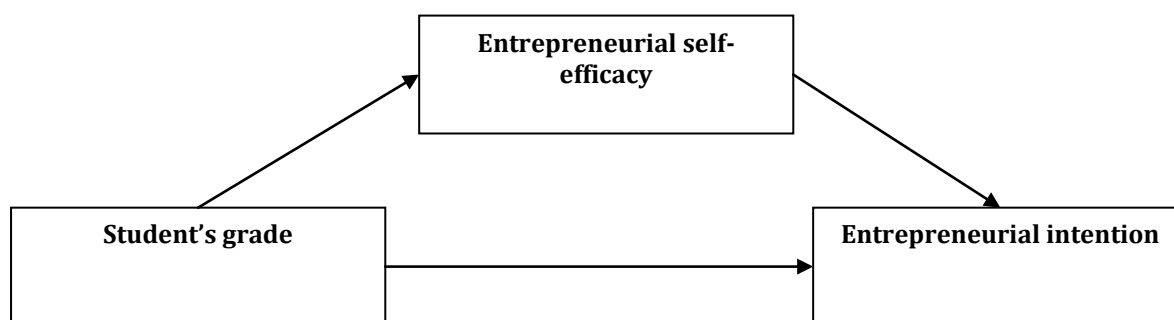


Figure 6: single-mediator model

The study of the mediating effect of entrepreneurial self-efficacy will be interesting because most studies investigated how self-efficacy predicts academic performance (Hwang, Choi, Lee, Culver & Hutchison, 2015; Lane, & Lane, 2001; Lent, Brown, & Larkin, 1984; Multon, Brown, & Lent, 1991; Shkullaku, 2013) but not in the other way around. Bandura (1993) pointed out that possessing the required skills is not sufficient to achieve performance but rather the combination of the abilities and the perceived self-efficacy of these competences is more adequate. Loo and Choy (2013) tested the impact of self-efficacy components on the academic achievement of polytechnic engineer

students and tried to determine which of the sources of self-beliefs is the strongest predictor of academic performance. The results showed that three of the four elements of self-efficacy, namely, mastery experience, vicarious experience and emotional arousal were correlated to academic achievement. Mastery experience stood out from the four self-efficacy components as the best predictor of academic performance.

However, Hwang and al (2015) indicated the powerful influence of past academic performance on self-efficacy beliefs that in turn, affect academic achievement. Bandura (1988) through his social cognitive theory highlighted that mastery experience is the strongest determinant of perceived self-efficacy and thus experimenting success increases considerably the self-efficacy level. Indeed, the individual uses his or her past performance to evaluate current tasks (Gist & Mitchell, 1992). Locke, Frederick, Lee and Bobko (1984) showed the explanatory power of self-efficacy on future performance but in spite of that significant result, the correlation between past performance and self-efficacy was higher than the relationship between self-efficacy and future performance. Therefore, past academic grades could influence self-efficacy and in the case of this paper, entrepreneurial self-efficacy.

2.2. The mediation model

2.2.1. Baron and Kenny's causal approach

The mediation model has been proposed by Baron and Kenny (1986) in the statistical field. It consists of a causal approach characterized by a path model with 4 steps (see figure 7 below):

- The first link is between the independent variable (X), students' grade, and the dependent variable (Y), entrepreneurial intention, and represents the total effect (path c).
- The second relationship shows how the independent variable predicts the mediator (path a).
- Thirdly, the impact of the mediator (M) on the response variable is represented by the path b.
- The final step evaluates the predictability power of both the independent variable and the mediator on the response variable (path c').

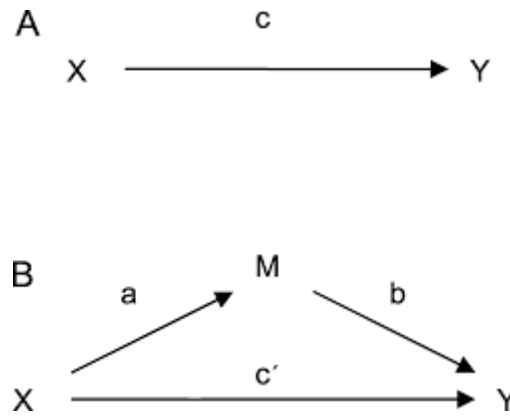


Figure 7: The mediation model requirements based on Baron and Kenny's (1986) method. (Mallinckrodt, Abraham, Wei & Russell, 2006)

The above model is created by means of the three following equations that generate the 4 necessary coefficients (also called paths):

$$\hat{Y} = i_1 + cX \quad (1)$$

$$\hat{M} = i_2 + aX \quad (2)$$

$$\hat{Y} = i_3 + c'X + bM \quad (3)$$

According to Baron and Kenny (1986), a mediation must fulfil three conditions: the relationship between the independent variable and the so-called mediator is significant (path a), the predictability power of the mediator on the dependent variable is significant (path b) and finally the relationship between the independent and dependent variable after controlling for the mediator, that represents the direct effect, is no longer significant (path c'). In regard to the indirect effect, defined as the effect of X on Y only through M, Baron and Kenny (1986) adopted the Sobel's test (1982) to measure it. This method consists of a multiplication of path a (from X to M) and path b (from M to Y). Here below is the equation for this indirect effect using Sobel's method (1982):

$$z = \frac{a \times b}{\sqrt{b^2 s_a^2 + a^2 s_b^2}} \quad (4)$$

According to Baron and Kenny (1986), two possible types of mediation can occur when the first relationship (from the independent variable to the dependent variable) is significant: a full mediation when the direct effect (path c) is equal to zero and a partial mediation in the case of coexistence of the direct and indirect effects.

For a long time, Baron and Kenny's mediation model has been the traditional method used in various studies (Eddy & Chamberlain, 2000; Lewis, Forsyth, Pinto, Bock, Roberts & Marcus, 2006; Lo, Ho & Hollon, 2008; Taris & Kompier, 2006; Treynor, Gonzales & Nolen-Hoeksema, 2003). MacKinnon, Fairchild and Fritz (2007) reported 291 studies that integrated the mediation model developed by Baron and Kenny (1986) with social psychology and clinical psychology as the two most cited areas.

However, this mediation model has been recently called into question for several reasons (Hayes, 2009; Krause, Serlin, Ward, Rony, Ezenwa & Naab, 2010; MacKinnon, Krull & Lockwood, 2000; MacKinnon & al, 2002; Shrout & Bolger, 2002; Zhao, Lynch & Chen, 2010). The most important critic is undoubtedly the condition requiring that the first relation between the independent variable and the dependent variable (path c) must be significant to have a mediated effect (Collins & al, 1998; Rucker & al, 2011). The second critic is the third condition stating that path c', where both the independent variable and the mediator predict the response variable, must be equal to zero in order to have a mediation (Krause & al, 2010). Mediation may be hidden in the presence of dilution and suppressor effects (Shrout & Bolger, 2002). The first one, dilution, postulates that the relation between the independent variable and the dependent variable may be distal yielding to small effects on the dependent variable. However, when the mediator is added, the relations become more proximal with $X \rightarrow M$ and $M \rightarrow Y$ with medium to large effect (Shrout & Bolger, 2002). The suppression effect suggests that the indirect effect ($a \times b$) may have the opposite sign of the direct effect (path c') and consequently, cancel the mediation effect (Krause & al, 2010). In view of the problems related to the first requirement of Baron and Kenny's mediation model (1986), Zhao and al (2010) identified 5 possible results in mediation analysis:

1. *Complementary mediation*: The indirect effect (path $a \times b$) and direct effect (path c) both take place and point at the same direction.
2. *Competitive mediation*: The mediated effect ($a \times b$) and the direct effect (path c) are both present but hold values of opposite sign.
3. *Indirect-only mediation*: Only the indirect effect ($a \times b$) occurs.
4. *Direct-only nonmediation*: Unlike number 3, only the direct effect (path c) takes place.
5. *No-effect nonmediation*: None of the two effects exist.

In their approach, Zhao and al (2010) classified path c' as the total effect and path c as the effect to be mediated. The total effect is considered as irrelevant to the mediation analysis and therefore is removed from the study. Their new model based on Baron and Kenny's mediation model (1986) is the following:

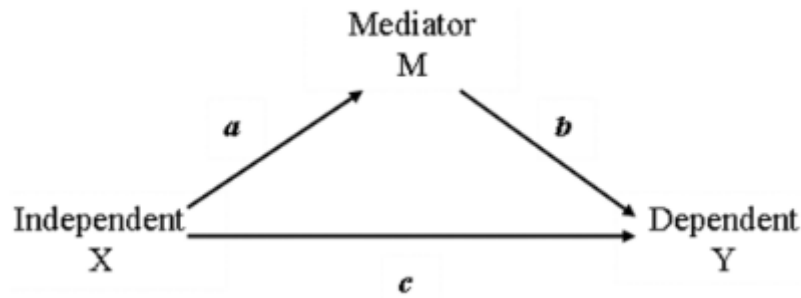


Figure 8: Three-variable nonrecursive causal model of Zhao, & al (2010)

A new standard is not yet established but the macro model proposed by Preacher and Hayes (2004) on SPSS seems to provide an acceptable alternative given its large application in scientific articles (Cole, Walter & Bruch, 2008; Knoop, van Kessel & Moss-Morris, 2011; Raes & al, 2006; Raes, Dewulf, Van Heeringen & Williams, 2009; Valeri & VanderWeele, 2013; Zacher, Heusner, Schmitz, Zwierzanska & Frese, 2010; Zhao & al, 2010). This method follows the mediation model of Baron and Kenny (1986) but unlike these two authors, Hayes (2009) claimed that an indirect effect may exist even though one of the path coefficient is not significant. Their application uses ordinary least squares regression.

2.2.2. Hayes and Preacher mediation analysis

The different steps of this approach are presented below for a single-mediator model whose independent variable is multicategorical (Hayes & Preacher, 2014). The mediation model is characterized by two equations estimated with Ordinary Least Squares (OLS) regressions:

$$M = i_1 + aX + e_M, \quad (1)$$

$$Y = i_2 + c'X + bM + e_Y. \quad (2)$$

These two equations are the same from Baron and Kenny's model (1986) but the total effect (relationship between X and Y without M) is not included in the mediation model. The third equation (see below) is seen as the sum of both indirect (characterized as the product of path a and b) and direct effects: $c = c' + a \times b$. It represents the total effect.

$$Y = i_3 + cX + e_Y. \quad (3)$$

Given that the independent variable is multicategorical, a dummy coding method is used in order to operate the three above equations. According to that mechanism, the k groups of the independent variable are transformed into k-1 variables named D_i that take either the value 1 if a case falls into group i and 0 otherwise. The group that is not taken into account is called the reference group and all the k-1 variables take the value 0 for that category. Equations (1) and (2) become the two following:

$$M = i_1 + a_1D_1 + a_2D_2 + \dots + a_{k-1}D_{k-1} + e_M, \quad (6)$$

$$Y = i_2 + c'_1D_1 + c'_2D_2 + \dots + c'_{k-1}D_{k-1} + bM + e_Y, \quad (7)$$

Consequently, k-1 "a" coefficients and "c'" coefficients are created and quantify differences between groups on M and Y controlling for M, respectively. The indirect and direct effects are labelled "relative" by Hayes and Preacher (2014) because the results of the regressions differ on how the independent variable is coded. The relative total effect is constructed as follows:

$$Y = i_3 + c_1D_1 + c_2D_2 + \dots + c_{k-1}D_{k-1} + e_Y. \quad (8)$$

The total effect is again equal to the sum of both indirect and direct effects: $c_i = c'_i + a_i b$. Below is represented the mediation analysis (figure 9) whose independent variable is transformed into k-1 variables D.

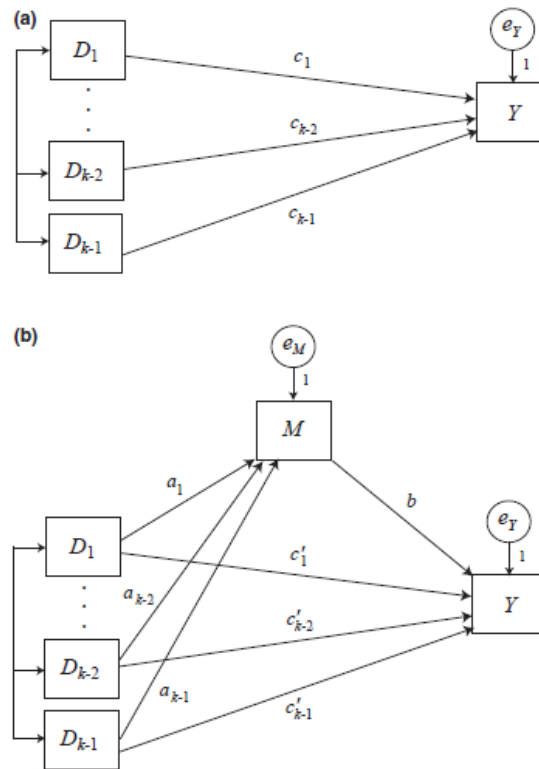


Figure 9: A mediation model in path diagram form corresponding to a model with a multicategorical independent variable with k categories (Hayes & Preacher, 2014)

In regard to the indirect effect, Hayes and Preacher (2014) opted for the bootstrap method with its confidence intervals because it does not require the assumption of normality of the sampling distribution for the product of coefficients a_i and b . The process is explained below (Hayes & Preacher, 2014, p. 462):

A percentile bootstrap CI for a relative indirect effect is constructed by repeatedly taking sample of size n with replacement from cases in the data (e.g., participants in the study), where n is the size of the original sample, and estimating all the coefficients in the mediation model using equations (6) and (7) in each bootstrap sample. From the estimated coefficients, the relative indirect effects are calculated. Repeated j times (ideally $j = 5,000$ or more), the distributions of j relative indirect effects serve as empirical approximations of their sampling distributions. A $100(1 - \alpha)\%$ CI for each relative indirect effect is constructed as the bootstrap estimates that define the lower and upper $100(\alpha/2)\%$ of the distribution of j estimates, respectively. The relative indirect effect is deemed statistically different from zero if the CI does not straddle zero.

In next section, the analysis of the relationship between students' grade and entrepreneurial intention is carried out as well as the examination of the possible mediating effect of entrepreneurial self-efficacy on the previous relationship.

Chapter 3: Empirical part

3.1. Methodology

3.1.1. Sample

The questionnaire was fulfilled by 1810 students from 4 different countries, namely Canada, Belgium, France and Algeria. However, all the missing data were removed from the sample in order to avoid generating incorrect results with incomplete answers. The final sample contains 1007 respondents which corresponds to a rate of 55.63% of responses. The four major **nationalities** were Canada with 61.6%, Belgium with 12.5%, France with 11.6%, and Algeria with 10.3% and they represent 96% of the sample. **Gender difference** is very small with 52.8% of male students and 47.2% of female students. Regarding the **age groups**, 58.3% of the students fall into the 17-24 years-old category, 31.4% into the 25-34 years-old group, 9.1% into the 35-49 years-old category and finally 1.1% of the sample is composed of 50 years and older scholars. In the light of these results, students of 25 years and older represent nearly half of the persons surveyed which means that people start late college or they may decide to go back to study another field. In the sample, students are split into 7 **fields of study**. For a 86.2% of response rate, the ensuing results were found: 42.1% in Management sciences, 26.3% in Pure sciences and Engineering, 9.8% in Social science, 5.8% in Education, 5.8% in Arts, Letters and Languages, 5.4% in Psychology and finally 5% in Health sciences. Finally, respondents were asked to choose their **area of specialization** among 8 fields yielding to the following observations for a response rate of 37%: 21.2% in Management, 20.6% in Marketing, 13.4% in Accounting, 12.3% in Finance, 10.2% in Entrepreneurship, 9.7% in General, 3.5% in Logistics, and 9.1% in Human Resources.

3.1.2. Procedure

The Ordinary Least Square (OLS) method was used to assess the predictive power of the different relationships. The software SPSS was adopted to run the macro process developed by Hayes and Preacher (2004). Along with the mediation module, OLS

regressions were used to cross-check the macro process results except for the indirect effects that were too complicated to operate without the module. The unstandardized betas (b) were used instead of the standardized betas (β) because they are preferable in causal modeling (Hayes & Preacher, 2010). The module was configured at 1000 bootstrap samples with a 95% level of confidence. All missing data from students' grade were removed giving a size of 1007 responses.

3.1.3. Measures

In the present statistical analysis, several variables needed to be created to run the different tests. The first variable is *entrepreneurial intention*. The measure of Thompson (2009) was used and includes 6 items. Those questions are: 1) "Never search for business start-up opportunities", 2) "Are saving money to start a business", 3) "Do not read books on how to set up a firm", 4) "Have no plans to launch your own business", 5) "Spend time learning about starting a firm", 6) "Intend to set up a company in the future". A seventh item, 7) "Intend to buy a company in the future", was integrated into the questionnaire in order to capture the global intention either by founding or buying a firm (Mathieu & St-Jean, 2013). They were calculated with 7-point Likert scale ("Strongly disagree" to "Strongly agree") for question 1 to 5 and the two last questions were measured on a 5-point scale ("Not at all" to "Extremely").

Provided that question 1, 3 and 4 are negative, a reverse coding was necessary in order to have a consistency among the indicators. Before averaging all 7 items to obtain one unit of entrepreneurial intention, question 6 and 7 were multiplied by 7/5 in order to have the same scale (7-point scale). Multiple authors adopted this entrepreneurial intention measure in their studies (Bönte, Procher & Urbig, 2015; Mathieu & St-Jean, 2013; Nabi & Liñán, 2013; Saint-Jean & al, 2014).

After a cross-check of various studies (Kolvereid, 1996; Krueger & al, 2000; Liñán, 2004; Liñán & Chen, 2006; Rueda, Moriano & Liñán, 2015), Bandura's theory of planned behavior (1991) was used to predict the intent to start a new venture. The first element of this model, *attitude toward the act*, was determined through the expected outcomes of self-employment career (Rueda & al, 2015). The multiple-items question was adapted from Krueger and al (2000) with expected outcomes being: financial rewards, autonomy, personal rewards, family security, and social improvement measured on 5-

point Likert scale (“Not at all” to “Extremely”). All the scores were averaged to have an unique variable.

Secondly, *subjective norms* are calculated through the product of the approval or disapproval level of important referents and the motivation to comply with the important persons in question (Ajzen, 1987) and afterwards, the results from the multiplication were normalized by dividing the product by 7. In the questionnaire, the two questions related to normative beliefs were based on Kolvereid and Isaksen’s measure (2006) and consisted of two questions: the first one asks the respondent to rate the opinion of 6 groups of persons, namely parents, spouse, brothers and sisters, family, close friends and acquaintances regarding his or her career choice to become an entrepreneur using a 7-point Likert scale (“very negative” to “very positive”) and the second question evaluates the importance given to each person’s opinion with a 7-point Likert scale (“Not at all important” to “Extremely important”). A value of zero was attributed if the respondent had no relationship with the referent. The 6 values representing the opinion of the referents were averaged to have one variable.

The third component, *perceived behavioral control*, is estimated through the general self-efficacy scale proposed by Schwarzer and Jerusalem (1995) since literature (Ajzen, 2002; Krueger & al, 2000) showed that perceived behavioral control is similar to self-efficacy. In this way, 10 sub-questions form the general self-efficacy variable and each of them evaluates the level of confidence of a person in general situations. The statements of each of the 10 questions were measured on a 7-point Likert scale (“Strongly disagree” to “Strongly agree”). The 10 questions were averaged in order to have one item.

The second latent variable to create is *entrepreneurial self-efficacy*. Different measures are used to estimate this variable but the four stages entrepreneurial life-cycle method (Kickul & al, 2005) was chosen. The questions were formed using McGee and al’s construct (2009). The variable is composed of 5 stages (the fourth stage is divided into two) defined by multiple questions: searching, planning, marshalling, implementing-people, and implementing-financial. The students were asked to assess their level of confidence in each stage of a business start-up using a 10-point scale in percentage (from 0 to 100%). Every phase was averaged and the 5 stages of entrepreneurial life-cycle were aggregated into one variable: entrepreneurial self-efficacy. Various authors

used McGee's scale to measure entrepreneurial self-efficacy (Ketter & Arfsten, 2015; Sriramachandramurthy, Stromeier, Miller & DeMartino, 2014; Tegtmeier, Kurczewska & Halberstadt, 2016).

The third latent variable in the regression model is the *academic grade*. The students from Canada, France and Belgium were asked to give an assessment of their academic average grade by choosing between the four possible answers (1 is "Excellent", 2 is "Very good", 3 is "Good" and 4 is "Poor"). The Algerian scholars evaluated their average grade on a scale from 1 to 5 (1 is "Very good", 2 is "Good", 3 is "Satisfactory", 4 is "Passed" and 5 is "Poor").

Finally, *control variables* were added to the analysis. Literature on entrepreneurial intention indicated that *gender* has an impact on someone's intention to start a new venture (Gupta & al, 2009; Raaj, & Shri, 2015; Shinnar, & al, 2012). *Age* has an important role on one's intention to become an entrepreneur and especially those who fall into the age group of 25-34 years old (Reynolds, 2001). Indeed, young people are more likely to start a new business than older ones because these latter ones are less willing to invest time in activities that do not yield to immediate returns (Lévesque & Minniti, 2006). *Marital status* and *the number of children* have some effects on self-employment decision (Reynolds, 1997). Reynolds (1997) found that unmarried or separated individuals with one or two children were more likely to become entrepreneurs. Lastly, *the field of study* and *the area of specialization* of the student were included in order to examine their effect on entrepreneurial intention. The entire questionnaire is listed in the appendix. The variable "field of study" was transformed into 7 dummies that represent the various fields of study and "area of specialization" was also converted into 8 dummy variables that characterize the 8 specializations.

3.1.4. Data

The questionnaire was cross-checked with aim to run efficiently the software. First of all, the variable "score" was created and contains students' average grade. Provided that a specific question was made for the Algerian students with a different scale than the one applied to the rest of the sample, a transformation of the Algerian scale was need to be consistent with the other scale. Finally, the variable "score" added up both Algerian and the rest of the sample grades which gave 8 different categories of score. As a result, the

variable X (score) was defined as multicategorical. A second step was to turn the variable “score” into k-1 dummy variables as explained earlier in the Hayes and Preacher method in order to run the regressions properly. Therefore, each of the 7 variables (ranging from 1 to 4) takes either the value 1 if the response corresponds to that class or 0 otherwise. The category with the smallest score (0.8 in this case) was determined as the reference group. The total, direct and indirect effects are called relative because each of the dummy variables represents the difference between that variable and the reference variable (Hayes & Preacher, 2014).

3.2. Data analysis and results

As mentioned in mediation model section, the analysis will follow the 4 steps of the Baron and Kenny (1986) mediation model but according to Hayes and Preacher (2014) modifications.

Table 1 shows the means, standard-deviations and intercorrelations for all the variables used in this study for the all sample. We compared the four major countries: Canada, France, Belgium, and Algeria on the basis of entrepreneurial intention, attitude toward the act, subjective norms, perceived behavioral control, entrepreneurial self-efficacy, and academic achievement.

Afterwards, an analysis of the predictability power of the three components of the theory of planned behavior (Bandura, 1987), namely attitude toward the act, subjective norms and perceived behavioral control was carried out. Two models were analyzed whose one contains only the demographic variables and the other one includes both demographic variables and theory of planned behavior (TPB) elements. The demographic variables are viewed as the control variables and allow us to measure the explanatory power of the TPB on intention to start a new firm.

In table 3, the results are exposed for the two models. The TPB components all have a significant and positive effect on entrepreneurial intention and explain approximately 10% of the variance in intention. Attitude toward the act and perceived behavioral control (PBC) seem to have a higher predictability power than subjective norms ($\beta_{\text{attitude}} = 0.210$, $\beta_{\text{norms}} = 0.100$, $\beta_{\text{PBC}} = 0.173$). In regard to the demographic variables, it can be clearly seen that men have higher intentions than women and age has a positive

effect on intention. In addition, the number of children under the care of someone has a significant negative effect on intention. When looking at the impact of students' field of study and area of specialization, it can be noticed that education, psychology, and pure sciences and engineering have a significant and negative effect on someone's intent to become an entrepreneur. A specialization in entrepreneurship has a positive effect on intention but is significant at a $p\text{-value} \leq 0.05$.

Table 1 Descriptive statistics and intercorrelations^c for all variables (n = 373^d)

		<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11
1	Gender ^a	.472	.4994											
2	Age	25.728	6.6835	.078										
3	Marital Status ^b	.494	.5002	.060	.269									
4	No. Of children	1.195	.8020	.067	.565	.273								
5	Field of study	4.430	1.4884	-.285	-.151	-.056	-.103							
6	Area of specialization	4.71	2.333	.081	.092	-.072	-.009	-.041						
7	Intention to start a business	4.193	1.2926	-.230	.116	-.038	-.038	.022	.119					
8	Attitude toward the act	3.550	.6686	-.100	.037	-.061	-.014	.026	.022	.344				
9	Subjective norms	3.425	1.3311	.103	-.011	.131	.037	-.006	.097	.127	.185			
10	Perceived behavioral control	5.648	.7451	-.102	.169	.106	.095	.079	.011	.291	.194	.070		
11	Entrepreneurial self-efficacy	6.655	1.4120	-.126	.120	.013	.035	.072	.099	.449	.295	.149	.462	
12	Academic grade	1.957	.7329	-.149	-.168	-.171	-.158	.080	.005	.097	.127	.017	.109	.010

Notes: ^aMen = 0, women = 1.

^bSingle = 0, with partner = 1.

^cCorrelations ≥ 0.067 are significant at $p \leq 0.05$; correlations ≥ 0.095 are significant at $p \leq 0.01$; correlations ≥ 0.1 are significant at $p \leq 0.001$ except correlations with area of specialization which are all insignificant and the correlation between number of children and field of study are significant at $p \leq 0.01$.

^dBecause of some missing values, we indicated the smallest number of cases.

Table 2 : Comparison of indicators by country

	<i>Canada</i>	<i>France</i>	<i>Belgium</i>	<i>Algeria</i>
Entrepreneurial intention	4.085	4.541	3.652	4.840
Attitude toward the act	3.419	3.796	3.445	3.971
Subjective norms	3.387	3.577	3.106	3.604
Perceived behavioral control	5.740	5.447	5.235	5.747
Entrepreneurial self-efficacy	6.745	6.458	6.097	6.964
Academic grade	1.789	2.252	2.420	2.067

Table 3: entrepreneurial intention regression on demographic variables and TPB components

		<i>Model 1^c</i>		<i>Model 2^d</i>	
		β		β	
Gender ^a		-0.191	***	-0.166	***
Age		0.193	***	0.166	***
Marital status ^b		-0.011		-0.029	
No. of children		-0.118	***	-0.119	***
Field of study					
	Arts, Letters & Languages	0.028		0.039	
	Education	-0.151	***	-0.118	***
	Psychology	-0.193	***	-0.164	***
	Management sciences	0.009		0.026	
	Social sciences	-0.091	*	-0.061	
	Pure sciences & engineering	-0.148	***	-0.098*	
	Health sciences	-0.070	*	-0.067*	
Area of specialization					
	Accounting	0.027		0.027	
	Entrepreneurship	0.118	*	0.094	
	Finance	0.054		0.040	
	General	0.007		0.002	
	Logistics	0.045		0.030	
	Management	0.049		0.028	
	Marketing	0.025		-0.002	
	Human Resources	-0.033		-0.043	
Attitude toward the act				0.210	***
Subjective norms				0.100	***
Perceived behavioral control				0.173	***
Adj. R ²		0.187		0.286	
Sig. (F)		0.000		0.000	
N				981	

Notes: ^aMen = 0, women = 1.^bSingle = 0, with partner = 1.^cModel 1 has only the demographic variables as predictors.^dModel 2 includes demographic variables and TPB components as predictors.* = $p \leq 0.05$; ** = $p \leq 0.01$; *** = $p \leq 0.001$.

Before analyzing the mediation, a first regression of entrepreneurial intention on academic grade is realized. The purpose was to examine the predictability power of students' grade on entrepreneurial intention (in mediation model, it represents path c, the relative total effect). The seven dummy variables determining the academic grade were, as said earlier, computed as the difference between the category and the reference group (here score of 0.8). As illustrated in table 4, the two models show the exact same result, which validates the macro process model. Score of 1 and 2 are negative and significant. However, the academic grade variables account only for a small part of the variance in intention (R^2 of model 1 = 0.042). As a result, hypothesis 1 stating the existence of a positive and significant relationship between one's intent to start a new venture and his or her academic grade is rejected.

Table 4: Entrepreneurial intention's regression on academic performance

	Model 1 ^a			Model 2 ^b		
	b ^c		SE ^d	b		SE
Score of 1	-1.324	***	0.348	-1.3238	***	0.3482
Score of 1.6	-0.443		0.413	-0.4431		0.4131
Score of 2	-1.113	***	0.345	-1.1130	**	0.3446
Score of 2.4	-0.387		0.400	-0.3867		0.3999
Score of 3	-0.899	*	0.351	-0.8991	*	0.3508
Score of 3.2	-0.593		0.489	-0.5931		0.4890
Score of 4	-1.192	*	0.588	-1.1918	*	0.5877
R ²		0.042			0.0421	
Δ Sig. (F)		0.000			0.000	
N		1007			1007	

Notes: ^aModel 1 is obtained by using OLS technique on SPSS software.

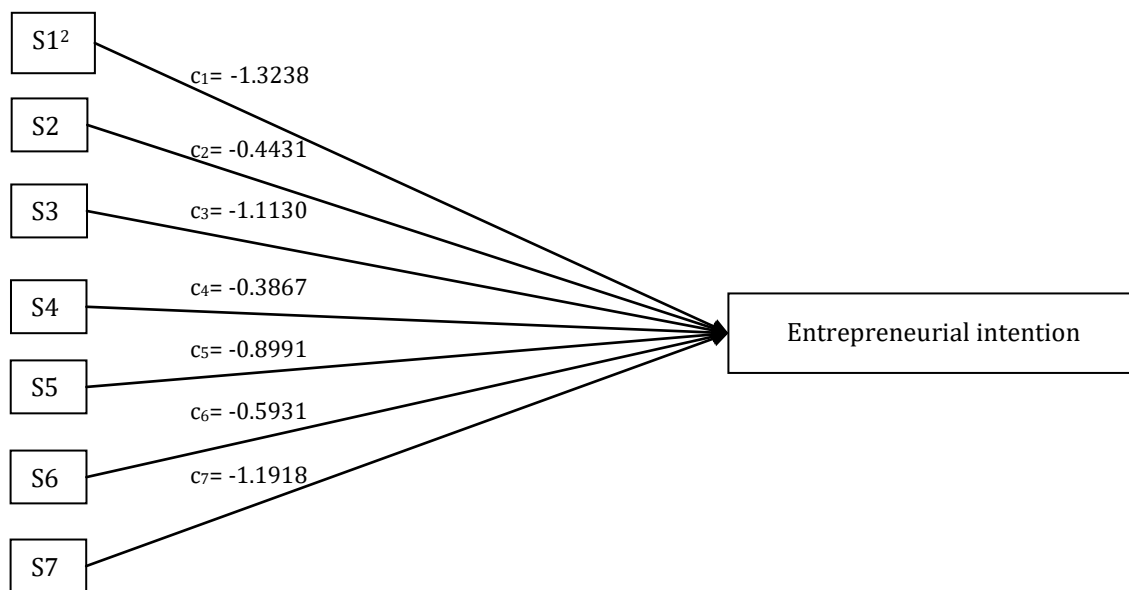
^bModel 2 is derived from Hayes and Preacher's macro (2014).

^cb represents the unstandardized beta.

^dSE is the abbreviation of standard error.

* = $p \leq 0.05$; ** = $p \leq 0.01$; *** = $p \leq 0.001$.

Hypothesis 1



Now, the mediation analysis is performed. As exposed before, a mediation analysis examines two paths: from independent variable to mediator and from independent variable after controlling for mediator to dependent variable. Firstly, the entrepreneurial self-efficacy regression is operated on the academic grade predictors. In table 5, it can be clearly seen that the explanatory power of academic achievement is extremely weak (R^2 of model 1 = 0.010) and non-significant (p-value of model 1 = 0.159).

Table 5: Entrepreneurial self-efficacy regression on academic grade

	Model 1 ^a			Model 2 ^b		
	b ^c		SE ^d	b		SE
Score 1	-0.788	*	0.387	-0.7882	*	0.3866
Score 1.6	-0.285		0.459	-0.2853		0.4587
Score 2	-0.758	*	0.383	-0.7581	*	0.3826
Score 2.4	-0.383		0.444	-0.3833		0.4439
Score 3	-0.762		0.389	-0.7622		0.3895
Score 3.2	-1.129	*	0.543	-1.1290	*	0.5429
Score 4	-0.765		0.652	-0.7655		0.6525
R^2	0.010			0.0105		
Δ Sig. (F)	0.159			0.1591		
N	1006			1006		

Notes : ^aModel 1 is obtained by using OLS technique on SPSS software.

^bModel 2 is derived from Hayes and Preacher's macro (2014).

^cb represents the unstandardized beta.

^dSE is the abbreviation of standard error.

* = $p \leq 0.05$; ** = $p \leq 0.01$; *** = $p \leq 0.001$.

Secondly, entrepreneurial intention regression is performed on both academic grade and entrepreneurial self-efficacy (path c' =relative direct effect). As illustrated in table 6, entrepreneurial self-efficacy is positive and significant while score of 1 and score of 2 are negative and significant. The explanatory power of the model is significant and explains 23.2% of the variance in intention, which is a decent result.

Table 6: Entrepreneurial intention regression on entrepreneurial self-efficacy and academic grade

	Model 1 ^a			Model 2 ^b		
	b ^c		SE ^d	b		SE
ESE	0.401	***	0.026	0.4011	***	0.0255
Score 1	-1.008	***	0.313	-1.0076	**	0.3126
Score 1.6	-0.329		0.370	-0.3287		0.3702
Score 2	-0.809	**	0.309	-0.8089	**	0.3093
Score 2.4	-0.233		0.358	-0.2330		0.3583
Score 3	-0.593		0.315	-0.5933		0.3148
Score 3.2	-0.140		0.439	-0.1402		0.4390
Score 4	-0.885		0.527	-0.8848		0.5268
R ²	0.232			0.2321		
Δ Sig. (F)	0.000			0.000		
N		1007			1007	

Notes: ^aModel 1 is obtained by using OLS technique on SPSS software.

^bModel 2 is derived from Hayes and Preacher's macro (2014).

^cb represents the unstandardized beta.

^dSE is the abbreviation of standard error.

* = $p \leq 0.05$; ** = $p \leq 0.01$; *** = $p \leq 0.001$.

The last regression measures the effect of academic grade variables on intention to become an entrepreneur only through entrepreneurial self-efficacy. In contrast to Baron and Kenny's mediation model (1986) that deduces the existence of mediation if every path is significant, the macro developed by Hayes and Preacher (2004) truly calculates the indirect effect even though one of the paths is not significant. In table 7 below, the results are mixed. As described in section "Hayes and Preacher mediation analysis", mediation occurs if zero is not included in the confidence interval denoted by LLCI (lower level of confidence interval) and ULCI (upper level of confidence interval) in table 7. Evidence that at least one relative indirect effect is different from zero supports the conclusion that the intervening variable mediates the effect of X on Y (Hayes & Preacher, 2014). The output shows that score of 1, score of 2, score of 3, score of 3.2 and score of 4 hold a value different from zero and impact negatively the entrepreneurial intention. Therefore, mediation can be concluded through these variables and the second hypothesis is confirmed.

Table 7: the indirect effects

	Indirect effect			
	b ^a	SE ^b	LLCI ^c	ULCI ^d
Score 1	-0.3162	0.1217	-0.5775	-0.0897
Score 1.6	-0.1144	0.1513	-0.3952	0.1866
Score 2	-0.3041	0.1183	-0.5607	-0.1016
Score 2.4	-0.1537	0.1458	-0.4688	0.1010
Score 3	-0.3057	0.1239	-0.5696	-0.0836
Score 3.2	-0.4529	0.2223	-0.9445	-0.0770
Score 4	-0.3071	0.1382	-0.5978	-0.0530

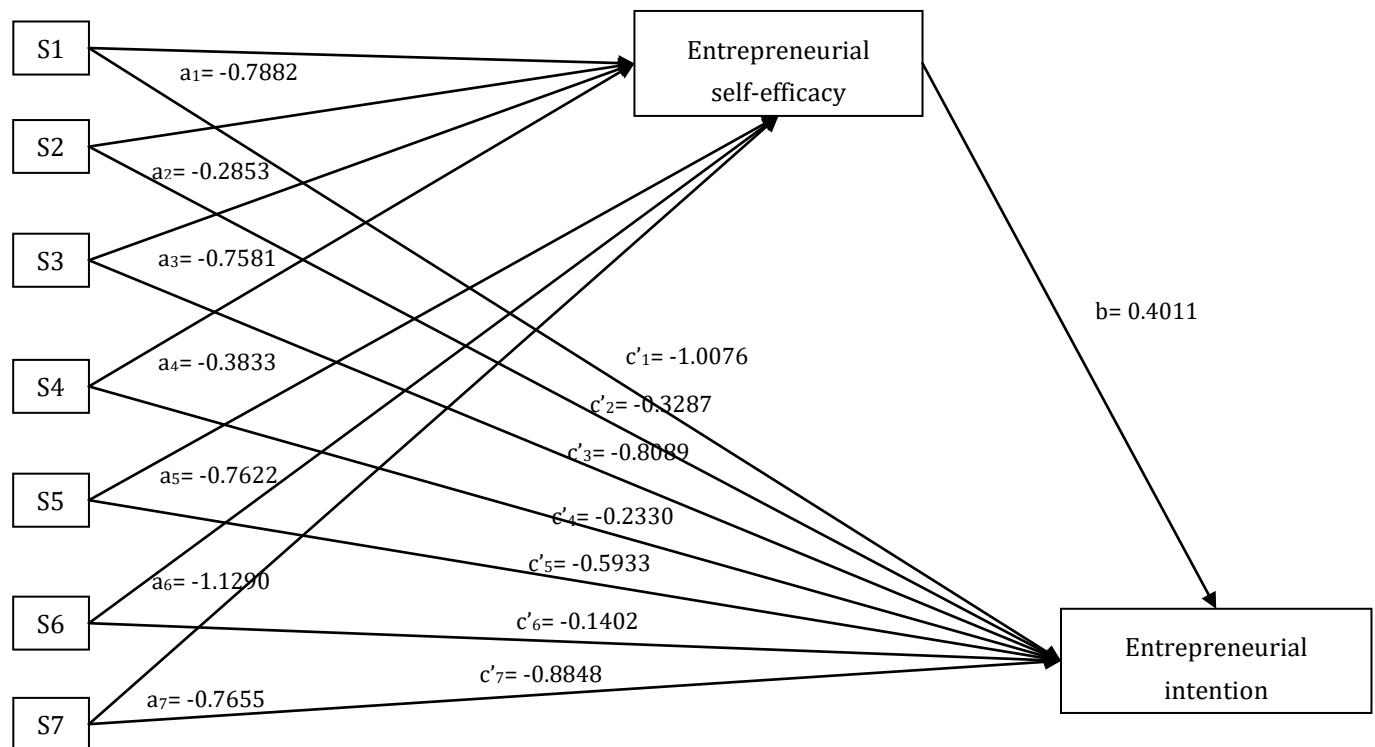
Notes : ^ab represents the unstandardized beta.

^bSE is the abbreviation of standard error.

^cLLCI is the lower level of confidence interval.

^dULCI is the upper level of confidence interval.

Hypothesis 2



Conclusion

A. Discussion

The results are interesting in various aspects. First of all, the three components of the theory of planned behaviour account for only 10% of the variance in intention once the demographic variables are controlled. This result is weak compared to previous studies (Engle, Dimitriadi, Gavidia, Schlaegel, Delanoe, Alavarado, He, Buame & Wolff, 2010; van Gelderen & al, 2008). Unsurprisingly, the subjective norms variable has a lower explanatory power than the two other TPB elements (i.e. attitude toward the act and perceived behavioral control) in intention's variance as multiple authors stated it (Ajzen, 1991; Fayolle & Gailly, 2004; Krueger & al, 2000; Liñán, 2004). This weak result means that other factors explain better than those integrated in the model. Entrepreneurship is still an empirical field that needs more researches and especially on the predictors of entrepreneurial intention.

In respect of students' grade's influence on entrepreneurial intention, the output of the regressions showed a very weak relationship ($R^2 = 0.042$). These results are in line with previous researches stating a low and/or insignificant impact of academic grade on intention to start a new venture (Farzaneh & al, 2010; Onyebu, 2015; Shrader & Finkle, 2015). When entrepreneurial self-efficacy is added as the intervening variable in the relationship between the independent variable and the dependent variable, the results are significant and show a R^2 of 23.2% and demonstrate the meaningful role of the mediator in the relationship. This outcome clearly suggests that the mediator explains practically the totality of the variance in intention. The significance of entrepreneurial self-efficacy in intention's variance is in line with previous studies stating the substantial impact of entrepreneurial self-efficacy on one's intent to become an entrepreneur (Boyd & Vozikis, 1994; Jung, Ehrlich, De Noble & Baik, 2001; McGee & al, 2009; Zhao & al, 2005). In addition to the mediator importance, an indirect effect is identified through the 5 dummy variables: score of 1, 2, 3, 3.2, and 4. In other words, it means that failing that students' academic grade impact directly intention to start a new business, it influences indirectly intention through the mediator.

In regard to the effects of demographic variables on intention, several findings stood out. First of all, no strong distinction between the three years of college (first year of studies = 4.145, second year = 4.245 and third year = 4.047¹) was detected which is in contrast with past studies reporting that scholars approaching the end of their university course show higher intention to pursue an entrepreneurial career given the imminent vocational choice they are facing (Gird & Bagraim, 2008; Liñán & Chen, 2009; Yaghmaei & Ghasemi, 2015).

Secondly, Algerian students show higher entrepreneurial intention than the Canadian, French, and Belgian students. A possible explanation of this difference may lie in the high unemployment rate present in Algeria and in Africa in general. Algerian students' aspiration to become entrepreneurs may be driven by necessity instead of opportunity due to the unfavorable economic situation they live in (St-Jean & al, 2014). Despite the growth performance of Algeria has increased, the country still holds a high unemployment rate (International Monetary Fund, 2007). In response to the problematic economic situation, the Algerian government has established many institutions to support and encourage business creation, and especially, ANSEJ (National Agency to Support Youth Employment) was created for the young people (Benhabib & al, 2014). Therefore, Algerian scholars can be motivated to start their own business in such economic situation.

To go further, a mean comparison in entrepreneurial intention across the different nationalities in the sample showed that African countries scored the highest on entrepreneurial intention with a score of 5.3 (Cameroun), 5.033 (Senegal), 4.930 (Côte d'Ivoire), and 4.904 (Morocco) on a maximum of 7. These results are consistent with literature arguing that African students have high entrepreneurial intentions (Fatoki, 2014; Malebana, 2014).

Since various researchers investigated the potential difference in entrepreneurial intention according to the gender (Haus, Steinmetz, Isidor & Kabst, 2013; Santos, Roomi & Liñán, 2016; Shinnar & al, 2012), it was meaningful to compare male and female students regarding their intent to pursue an entrepreneurial career. Male students show higher intention than female students in our analysis. This means that despite all the

¹ The values represent the average

actions undertaken to change the perception of entrepreneurship as a man's world, entrepreneurial career is still viewed as less desirable for women than men. The results are conformed to previous studies reporting the predominance of men in high intention to become an entrepreneur (de Bruin, Brush & Welter, 2007; Díaz-García & Jiménez-Moreno, 2010; Gupta, Turban & Bhawe, 2008). With respect to the variable "number of children", the output of the analysis shows that the more children a person has in charge the lower is the intention of that person to start a new venture. According to West and Worthington (2013), a person is less risk taker when he or has children in charge.

Given that entrepreneurship education gained a large popularity among university all over the world and that its objective is to increase students' intention to become an entrepreneur by providing them the skills and knowledge necessary (Liñán, 2004), it was interesting to examine if specific fields of study are more likely to enhance student's entrepreneurial intention. Education, Psychology and Pure sciences and engineering were the three most significant fields of study and impact negatively intention while specialization in entrepreneurship is barely significant and has a small impact on intention. Consequently, entrepreneurship education may not be as efficient in developing students' entrepreneurial intention as some authors argued (Fayolle & al, 2006; Sánchez, 2013; Soutiaris & al, 2007). Bae and al (2014) concluded a significant but small relationship between entrepreneurial programs and entrepreneurial intention.

B. Limitations

This study suffers from some limitations relating to its results. Canadian students are overrepresented in the sample with a size of 620 and Algerian scholars only account for 10% of the sample which may have biased the difference in entrepreneurial intention across the four countries. The variable used for the academic grade was self-reported which means that students could have overrated their score in order to give a social desirable answer (Crockett, Schulenberg & Petersen, 1987). Future research could use the actual grade point average provided by the university to analyze more accurately the relationship between academic achievement and intention to start a business. In addition to the self-report problem, the academic grades were measured through a different scale for the Algerian group which forces us to create a new variable gathering Algerian score with the others. The Algerian scale was adapted to the other scale giving

birth to 4 new scores' categories and a total of 8 groups instead of 4. The results could have been biased due the under-represented 4 new categories that were only assessed by the Algerian students.

A second limitation is the scope of the study. Indeed, the questionnaire was fulfilled in 13 universities across 4 countries: Canada, France, Belgium, and Algeria and consequently, the generalization to the all population is considerably limited. Moreover, the number of non-responses was high which decreases the size of the sample and as a result reduces again the generalization. A more creative and interactive survey method could improve the response rate for future researches.

A third limit is the causality assumed in this present study between students' grade and entrepreneurial intention. In order to conclude causality, a longitudinal research would have been more appropriate. Indeed, an investigation over time allows assessing a change in entrepreneurial self-efficacy as the student progresses in his or her academic path as well as validating the entrepreneurial intention variable when the student graduates and faces a career choice.

Aggregate measures were used to assess the entrepreneurial intention variable, the entrepreneurial self-efficacy variable and the three components of the theory of planned behavior. The problem with that method is the information loss that occurs (Clark & Avery, 1976). Another limitation is the unbalanced representation of the three levels of study. First-year students account for more than half of the sample while third-year scholars represent only 5% of it. As third-year students are more closely to the end of their university curriculum, they may consider more seriously entrepreneurship as a career choice and thus show higher intention to pursue that path. Nonetheless, this group of students is underrepresented and in consequence, bias may have occurred in the analysis and especially in the regressions.

C. Future research

Firstly, it appeared in this study that students with excellent or very good grade tend to have a lower intention to pursue a self-employment career. According to Lazear's theory (2005), entrepreneurs are jack-of-all-trades that perform well in numerous tasks without being a specialist. On the contrary, employees specialize in one or a small

number of skills. A future research could investigate if graduates with a high academic performance are more interested in a waged employment in big firms while the average student tends to be regular in various fields and thus more inclined to be self-employed.

Secondly, the poor performance of academic grade in explaining entrepreneurial self-efficacy could be justified by the fact that the association exists but in the other way round. Indeed, studies showed the powerful influence of self-efficacy on academic achievement (Lane & Lane, 2001; Lent & al, 1984; Multon & al, 1991) but no one examined the relationship with self-efficacy related to entrepreneurship. It leaves the door open to future investigation on the possible effects of entrepreneurial self-efficacy on student's academic grade.

D. Managerial and political implications

First of all, academic grade did not appear to be significantly associated with entrepreneurial intention and thus it does not help strengthening students' intention. Accordingly, entrepreneurial educators could opt for an alternative method when rating student's work performance instead of traditional grading system that lowers scholar's academic grade for poor quality assignments (Kuratko, 2003). Indeed, a different approach could further encourage students to invest a lot in entrepreneurial activities. Since entrepreneurship is a practical and innovative field, it would seem appropriate to match it to a creative grading system. For instance, "consultant learning" developed by Kunkel (2002) is an innovative learning process. This mechanism consists of enabling students to quantify their own grade according to the amount of work allocated to the course. The student receives a "payment" for each project submitted and the total of these payments determines the final grade (Kunkel, 2002).

Secondly, entrepreneurial self-efficacy turned out to be an important element in our analysis and proved its substantial influence when introduced in the relationship between academic grade and entrepreneurial intention. Moreover, as mentioned above our independent variable "academic grade" performed poor results in explaining intention but when entrepreneurial self-efficacy mediates its effects on intention, the independent variable impacts significantly the response variable. In view of the results, it can be clearly demonstrated the importance of entrepreneurial self-efficacy in building entrepreneurial intention and thus, the necessity to emphasize it in

entrepreneurial programs. As mentioned earlier, one's beliefs in his or her capability in performing successfully tasks related to entrepreneurship can be enhanced through 4 elements: enactive mastery, vicarious experience, social persuasion, and psychological state (Bandura, 1988). Entrepreneurship education can provide these sources of entrepreneurial self-efficacy in multiple ways. For example, enactive mastery can be developed through business simulations that put the knowledge acquired into practice (Stumpf, Dunbar & Mullen, 1991). For this reason, it seems important that universities create an appropriate entrepreneurial training so that students develop the adequate skills necessary to start their own business. The role of the instructor is crucial in teaching the courses related to entrepreneurship as they act more like a coach than a traditional teacher. Indeed, a feedback and supervision on the learning activities accomplished by the student are essential to allow him or her to progress (Hytti & O'Gorman, 2004).

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