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# The influence of entrepreneurship education on entrepreneurial intentions; based on personal initiative, creativity, and opportunity recognition

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# LIST OF ABBREVIATION

EE - Entrepreneurship education

EI - Entrepreneurial Intention

EA - Entrepreneurial Activity

EB - Entrepreneurial Behavior

PI - Personal Initiative

CR – Creativity

OR - Opportunity recognition

TPB - Theory of planned behavior

PB - Planned Behavior

PBC - Perceived Behavioural Control

# ABSTRACT

This research investigates the influence of entrepreneurship education (EE) on entrepreneurial intentions (EI). For that, a web-based cross-sectional survey was conducted at around 824 university students. The study involved masters and bachelor students studying at the entrepreneurship courses in Estonian universities.

A conceptual model was tested based on the theory of planned behavior (TPB), which included demographic factors, personal initiative (PI), creativity (CR), and opportunity recognition (OR) as an independent variable of entrepreneurial intentions. Descriptive measures, Pearson correlation, and Cronbach's alpha analysis were used to ensure the data reliability and validity, and multiple linear regression analysis was used to test the proposed hypotheses.

This study discovers two essential findings. First, in socio-demographic factors- the level of education and job next to studies show the significant influence on the entrepreneurial intention. Second, advanced personal initiative is also related to a higher level of entrepreneurial intention. Although creativity and opportunity recognition has not shown direct predictive value on entrepreneurial intention, they are positively correlated with each other.

The limitation of this study is school distribution; the majority of respondents are from TalTech. In terms of entrepreneurial decision-making, it is necessary to increase the sample size from different educational institutions.

This study provides the significance of an individual's behavior, like personal initiative, creativity, and opportunity recognition, influence on entrepreneurial intention. This research also contributes to the literature that entrepreneurial education's theoretical roles are positively connected between demographic factors and personal initiative with entrepreneurial intentions.



**Keywords:** Opportunity recognition, Creativity, Entrepreneurship education, Entrepreneurial Intention, Personal initiative, Planned behavior.

# INTRODUCTION

Innovative behavior implies self-starting in implementing something new, while proactive goals and plans relate to future opportunities and problems (Frese, Hass, & Friedrich, 2016). There has been a developing enthusiasm for seeing how entrepreneurship education (EE) can improve entrepreneurial initiatives by empowering more creative thinking (Fayolle & Gailly, 2015). EE permits a more enterprising society, fortified by public policymakers and government bodies worldwide (Jones & Iredale, 2014; Lima et al., 2015). This is because of the capacity to have an entrepreneurial mindset being advanced through education as students who studied entrepreneurship higher intentions to start-up business (Noel, 2002).

Furthermore, entrepreneurship can be advanced through EE (Fietze & Boyd, 2017; Saeed et al., 2015). It has stretched out with great speed across numerous higher education institutions worldwide and succeeded in influencing students' intention toward entrepreneurship that later transformed into actual behavior (Fretschner & Weber, 2013). The purpose behind advancing entrepreneurship primarily based on education is that it adds to the advancement of understudies, entrepreneurial attitude, capacities, and skills, and therefore the capacity to look for new entrepreneurial opportunities, subsequently improving their aim toward entrepreneurial projects (Piperopoulos & Dimov, 2015).

To the extent the impact of EE is concerned, the study has shown that a significant increase in entrepreneurship education across higher education institutions (Fretschner & Weber, 2013); however, researchers have discovered mixed results concerning its impact on entrepreneurial intention (EI). Some studies have discovered that it positively influences EI (Anwar et al., 2020), whereas some have discovered its adverse impact (Oosterbeek, Van Praag, & Ijsselstein, 2010). Moreover, Anwar et al. (2020) also discovered EE positively directing the connection between self-efficacy and intention. However, hardly any study testifies whether entrepreneurship education moderates the influence between personal initiative, creativity, and opportunity recognition in entrepreneurial intention. Therefore, analyze the moderating impact of entrepreneurship education will be very significant to know "how EE influences EI; based on demographic factors, personal initiative (PI), creativity (CR), and opportunity recognition (OR)?"

Opportunity recognition (OR) incorporates a person's capacity to perceive, discover, or develop examples and ideas (Hunter, 2013). (Manesh & Rialp-Criado, 2019), discover that EE in advanced level education enhances the impact of OR in EI. It is empirically verified that there is a distinction across gender demographically regarding the estimation of behavioral attitude and self-efficacy toward EI Anwar et al., 2020. Some studies show a significant effect of lecture creativeness beside EE on vocational students' EI (Piperopoulos & Dimoy, 2015; Purwana & Suhud, 2017). Furthermore, creativity is also considered a component of the perceived behavioral regulator therein it can impact an entrepreneur's view of the convenience of partaking in entrepreneurial activity (Phipps, Prieto, & Kungu, 2015). Additionally, personal initiative is fundamental for small business owners' success (Frese, Hass, & Friedrich, 2016); creativity strengthens the opportunity search strategies (Heinonen, Hytti, & Stenholm, 2011). Hence, it would be exciting to know how EE impact EI in terms of PI, CR, and OR.

The aim of this research is to examine the influence of entrepreneurship education on entrepreneurial intention, where the demographic factors, personal initiative, creativity, and opportunity recognition are the independent variables of entrepreneurial intention. Accordingly, the following hypotheses and the research model (Figure 3) will be explored in this study:

$H_1$: Demographic variables positively influence entrepreneurial intention.
$H_2$: Personal Initiative positively influences entrepreneurial intention.
$H_3$: Creativity positively influences entrepreneurial intention.
$H_4$: Opportunity recognition positively influences entrepreneurial intention.

This paper adds to the development of discussing entrepreneurship education by evaluating the key factors influencing Entrepreneurial intentions. This guides the assemblage of information about entrepreneurship education in better considerate the capacity to show entrepreneurial rehearses that lead to better social and economic results. It is also necessary to evaluate entrepreneurship by concentrating on people's developmental targets incorporated into enterprise educational programs.

The study involves masters and bachelor students studying at the entrepreneurship courses during autumn 2018 in Estonian universities. The survey instrument was compiled based on empirically tested constructs of competencies adopted in the context of entrepreneurship. A web-

based survey was conducted asking students for self-assessment of their competencies listed above (N=824).

In this paper, two main intention models are focused, first Shapero and Sokol (1982) entrepreneurial event theory. It gets an EI from the perceived attraction, perceived possibility, and the tendency to follow the opportunities. Second, Ajzen's (1991) theory of planned behavior (TPB). That describes intention supported perspective to behavior, subjective norm, and perceived behavioral control.

This study from a TPB (Ajzen, 1991) perspective, which is considered the best-anticipated theory supported by robust theoretical support and has been generally utilized to investigate entrepreneurial intention (Schlaegel & Koenig, 2014). Preliminary research results demonstrate that the demographic factors and personal initiative variables positively influence entrepreneurial intention. Even though creativity and opportunity recognition has not directly impacted entrepreneurial intention, but they are positively correlated.

This research's related literature was extracted from Taltech library, ResearchGate databases, Google Scholar, and GEM publications.

This research paper contains four main parts. The first part provides a theoretical background of the topic, entrepreneurship education, entrepreneurial activities, and describes relevant theories. Also, propose a conceptual model with the hypothesis to examine the impact of EE on EI. The second part of this thesis emphasizes the methodological approaches that have been used to conduct the research. And in the third part, a description of the data analysis and result. Finally, in conclusion, the theoretical and practical implications of the study are discussed.

# 1. THEORETICAL BACKGROUND AND LITERATURE REVIEW

This chapter provides a literature review, which should be considered about research tasks through theories, models, and approaches to develop and extract the entrepreneurial intentions and entrepreneurial education.

## 1.1. Overview of Entrepreneurship Education

Entrepreneurship education (EE) is defined as improving perspectives, manners, and abilities that can be applied during a person's profession as a businessperson (Wilson, 2009). This idea extends beyond merely teaching students to start a new business to integrate other rich learning experiences from an educational environment. These intercessions endorse- desire, confidence, awareness of opportunity, flexibility to change, and acceptance of risk. Furthermore, vagueness by altering perspectives and ingraining qualities, goals, practices, knowledge, and skills empowering individuals and groups to participate genuinely in all parts of life, to make something of significant worth, and additional financial freedom, or individual fulfillment, or both (Steenekamp, 2013: 104).

The goal of entrepreneurship education programs in universities is preferably focused on economic prospects, but less on creating entrepreneurial attitudes and behaviors to empower people in taking societal challenges (Rae, 2010) and challenges in their self-realization (Steyaert & Katz, 1994). Hence, entrepreneurship teaching programs have various responsibilities: to prepare people to become businesspeople or enterprise endeavors (Nielsem et al., 2012), and to support the improvement of entrepreneurial attitudes and behavior for the routine activity of creating value in society (Blenkeer et al., 2012). Entrepreneurship education is complex as exhibited by the assorted variety of its aims and the diversity of the ways and situations in which it is offered. Accordingly, entrepreneurship-related pedagogical programs expect different forms and titles. Such as, Pittaway & Cope (2007) and Pittaway & Edwards (2012) identify education "for," "about," "through" and, "in" entrepreneurship. These structures are clarified thus.

Initially, education "for" entrepreneurship is aimed at people who need to begin and maintain a business. Hence the curriculum of such a course emphasis related skills. Secondly, education

“in” entrepreneurship focuses on the practical side of entrepreneurship. Therefore, members of such programs learn by acting innovatively—emphasizing the capacity to move from thought acknowledgment to making an invention for customers. Thirdly, education “about” entrepreneurship follows the bookish custom and suggests the question: how might we clarify and understand entrepreneurship? (Hoppe, Westerberg, & Leffler, 2017). Lastly, education “through” entrepreneurship tries to prepare participants with human capabilities that inspire an entrepreneurial attitude to pursue societal goals. Thus, members need to “live” entrepreneurship. In such a manner, each citizen, whatever their position in life, must do things entrepreneurially.

University-based EE programs aim to improve a wide range of entrepreneurial results from abilities and knowledge on the most proficient method to venture up to goal development and attitudes (Nabi et al., 2016). Mwasalviba (2010) proposes that entrepreneurship’s meaning should be the beginning stage for entrepreneurship education, which decides both the substance and determination of studies as the showing techniques and appraisal contemplations. Based on the definition (FFE - YE, 2012), entrepreneurship is seen as a process where thoughts are acknowledged, utilizing the business’s potential outcomes to make them useful for other people. Thus, entrepreneurship education is perceived as a learning activity that supports students’ entrepreneurship ability. Entrepreneurship capability is defined as a comprehensive set of knowledge, skills, and mentalities that an individual needs to cope with uncertainty and flexibly react to change when learning, making, and executing (new) ideas in his own and professional life or community (Venesaar et al., 2018).

Entrepreneurship education differs from many other fields of study because it involves the learner as a participant in the entrepreneurship process. This enables creating an environment where the learners can take responsibility independently or as members of a team, act in a self-regulated manner, and experience a change in their competencies. This means that in entrepreneurial activity and realization of business opportunities, the individual is directly involved in the value creation process, which depends not only on other factors (e.g., influences of the external environment) and on the individual’s competencies. It is vital that in this process, the individual learners from experience gained. It follows that entrepreneurship competencies can be developed in the entrepreneurial process through an active participant’s experience.

Many recommendations are available for Educational Education advancement. For example, moving EE form a start-up view to a mindset-changing perspective (Mwasalwiba, 2010),

adopting an issue-based strategy to learning and teaching (Downing, 2010), focussing on the advancement of soft entrepreneurial skills instead of on teaching how to begin a business (Lautenschläger and Haase, 2011). A framework was created by (Moberg et al., 2014) with six subdomains of psychological and non-psychological entrepreneurship skills, such as creativity, planning, financial literacy, mobilizing assets, managing uncertainty, and teamwork. EE suggestions incorporate competency models that advance and can be assessed by the student's intellectual, creative, and emotional improvement and whether the focus is on their overall development (Vaidya, 2014).

Entrepreneurship is indispensable for the development of entrepreneurship competence of the learner. The goals and planning of entrepreneurship education need to be supplemented to pay more attention to developing the learner's initiative and cooperation skills and developing planning and problem-solving skills necessary to realize ideas. Those who intend to start a business, and those who choose to work as an employee in an existing business, public, or non-profit organization need to be entrepreneurial. Therefore, it is vital to focus on all competencies' holistic development rather than specific ones (Moberg & Revsbech, 2015).

## 1.2. Entrepreneurial Activity

As per (Venkataraman, 1997), entrepreneurial activity (EA) is a component of the link of two phenomena: the presence of rewarding chances and the presence of enterprising people. While entrepreneurship educations often place the person at the focal point of the analysis., these same persons are often influenced and formed by the nature of opportunities (Radosevic & Yoruk, 2013). These perspectives are now investigated in further detail.

### 1.2.1. Individual Factors

Individual factors include the cultural and social condition, just as the past involvement in EA influences the learners' entrepreneurial capability (Iizuka & Moraes, 2014). As a first aspect to notice, a student's age represents a pertinent driver of entrepreneurial attitude. According to (Levesque & Minniti, 2011), there are opportunity costs related to various age groups. With fewer resources, younger people can absorb more easily the uncertainty that emerges with new

ventures. Then again, older people have substantially more to lose by forgoing seniority wages in favor of risky returns. Accordingly, experimental outcomes show that university students between 25 and 34 years old are those with the highest chance to participate in entrepreneurial activities (Linan et al., 2011; Urbano et al., 2017) have also discovered a similar relationship between age and entrepreneurial tendency.

Second family income, these aspects are also expected to be associated with EA elements (Radosevic & Yoruk, 2013). However, family income gives only a partial view of the potential effects that close family members may have on the students' engagement about the new business's founding. For accessibility of financial resources, businesses are often implanted in family culture and relations (Aldrich & Cliff, 2003; Urbano et al., 2017) also identified a positive role of family culture in influencing students' tendency to involve in the establishment of new ventures.

Third, the family business background can be considered an essential factor for entrepreneurial behavior. Students who have a business with family members present a stronger self-employment tendency (Scott & Twomey, 1988). Research also found that students with a family business background are enthusiastic about their particular abilities and resources. They also look pessimistic about controlling their professions as entrepreneurs – a finding related to the difficulties and individual sacrifices experienced by their parents (Zellweger, Sieger, & Halter, 2011). Beyond culture, family members can also share biological features that drive perspectives toward entrepreneurship. According, to Shane (2010), "studies on acceptance provide proof of the impact of genes on work interests where biologically related individuals have a habit of similar job preferences, while adopted family members do not" (p.53). This may influence the tendency of family members to take the entrepreneurial profession.

Fourth, the nature and source of knowledge is also an essential aspect of this analysis, as it permits entrepreneurs to perceive technological and market prospects (Kor, Mahoney, & Michael, 2007). Radosevic & Yoruk (2013) express that knowledge-intensive entrepreneurship establishes a regular movement of development frameworks and one of its core properties. A similar perspective is shared by Acs, Autio, & Szerb (2014).

Finally, students joined in graduate programs often take entrepreneurial efforts through side projects related to academic research (Hayter, Lubynsky, & Maroulis, 2017). For example, it

presents Google as one academic side project of this sort (Hayter, 2016) and discoveries that graduate students play a critical role in the initial stages of the side project development. Hence, it is recommended that academic enrollment positively influences students' entrepreneurial intention (Linan et al., 2011).

### 1.2.2. Systemic Factors

EA is a social phenomenon, subject to the economic system's structural features on social processes and instruments (Radosevic & Yoruk, 2013). These components share the "entrepreneurial orientation" of innovation systems, for example, their ability to produce and exploit opportunities. This foundational nature includes people and socioeconomic and institutional aspects, while an entrepreneurial system's productivity is influenced by its segments' performance (Acs, Autio, & Szerb, 2014). For example, changes in legislation and regulatory systems at the national and university levels can improve entrepreneurial activity levels inside the academic context (Fini et al., 2017). This evidence pinpoints the significance of supporting performers and structures for the generation of student entrepreneurs (Wright, Siegel, & Mustar, 2017)

The geographic areas' characteristics have been related to student entrepreneurship as they set the basic economic situations for the rise of new business (Hayter, Lubynsky, & Maroulis, 2017). Accumulation economies give entrepreneurial frameworks with bigger pools of people to participate in new ventures and the supply of balancing productive inputs, resources, and positives externalities (Glaeser & Kerr, 2009).

Second, universities' research quality demonstrated huge effects on institutions' abilities to generate student entrepreneurship (Wright, Siegel, & Mustar, 2017). Di Gregorio & Shane (2003) find that universities' academic distinction is a crucial indicator of start-ups. Thus, it is expected that research-intensive university can positively influence the generation of new business by students, with a unique accentuation on innovation-driven ventures (Rocha & Freitas, 2014)

Lastly, the straightforward implementation of entrepreneurship courses, significant influences are also related to the coordination of entrepreneurship programs and other instruments at the university level. For example, business competitions and top activities (Boh, De-Haan, & Strom,

2015). So that the university environment can share the conditions for student entrepreneurship to flourish through the campaign, workshops, junior companies, and student organizations that associate entrepreneurial practices (Moraes, de Iizuka, & Pedro, 2018)

## 1.3. Entrepreneurial Intention (EI)

Intention can be defined as the plan or imagination of things to be performed by an individual in the future. The intention is distinct from random imagination and thinking since it is a prerequisite step for planned behavior (Ajzen, 1991) and leads to action, e.g., forming a company. EI is a well-known, popular, and reliable construct regularly accepted in empirical studies in business research. It is a useful way to interpret why some decide to follow an entrepreneurial career while others do not. However, various other variables like demographics, educational background, entrepreneurs in the family can also matter. Krueger, Reilly, & Carsrud (2000) suggest the question of why expectations are fascinating to the individuals who care about open a new business. The answer exists inside the idea that the prospect identification process of opening a business is planned. Hence, entrepreneurial intentions have value, as they offer a superior method for clarifying and forecast entrepreneurship since the business does not start as a reflex.

Intention models can be utilized to define how entrepreneurial intentions are shaped, how Education and training impact entrepreneurial intentions, and how existing entrepreneurs strategy to develop their business decision (Ngugi et al., 2012). With a full understanding of expectations, carefully planned interventions towards would-be and existing entrepreneurs can be wisely developed. The Study of EI is known as the initial phase in understanding how new ventures are formed. While thinking about the entrepreneurial concept, intentions portray an individual's view to start a business while intentionally planning to open that adventure at a future point in time (Kibler, 2012). Hence, understanding entrepreneurial intentions help this study foreground a comprehension of the plans that people may need to start this needed business. This info can help the different partners' shape strategy to make an empowering domain for entrepreneurial practice and support.

Intentional models offer a fair, accurate, and systematic outline for understanding the entrepreneurial process (Krueger, 1993). In their research, Murugesan and Jayavelu (2015)

report that empirical outcomes show that manners have effectively anticipated the intentions. Mentalities impact manners. It is those perspectives that are fruitful at foreseeing expectations. Having an expectation motivated towards entrepreneurship will impact and act around forming a business regularly, the manner will be agreeable to start a business.

Nabi & Linan (2015) define entrepreneurial intention as "Conscious awareness and conviction" (p.327), which an individual has intending to start a business soon. (Fini et al., 2009) Include that organizations are started on purpose and not by rules, emphasizing that the opportunity identification which prompts entrepreneurship is purposeful. It is thus vital to understand the variables that add to impacts entrepreneurship intention if this is the place the inspiration for future entrepreneurship (Rambe, Ndofirepi, & Dzansi, 2015)

Intentions are the forecast of planned manners; they forecast an individual's willingness to act (Kibler, 2012). Since the 1980s, researchers, for example, Ajzan, Fishbein, and Bagozzi have all worked to verify that an individual's intentions offer the maximum estimation towards releasing their manners (Fini et al., 2009).

Intentions are the best indicator of how individuals will act when they have to select something as intentions precede manners; the more substantial the intention, the more likely the manners will occur (Ajzen, 1991). Ngugi et al., (2012) summarise that intentions are a type of duty to a plan or action or manners.

The overall understanding of the argument of intentions is that attitudes and manners inspire intentions. This led to the development of various models that precisely understand how these attitudes and manners come into being. The models contain the Internal Basic Model (2000), the Shapero and Sokol Entrepreneurial Event Model (1982), Ajzen's Theory of Planned Behaviour (1991), the Entrepreneurial Potential Model (1994), the Entrepreneurial Attitude Orientation Model (1991), Brid Theory of Intentionality (1988) as well as Davidson's Model (1995) (Krueger, Reilly, & Carsrud, 2000). These models outlook attitudes and manners from a viewpoint, such as feasibility, desirability, achievement, personal control, self-esteem, innovation, personal relations, the general state of mind, and economic and psychological factors (Giagtzi, 2013). The most commonly accepted theory, which can also be considered the top predictor of intention, is Ajzen's Theory of planned Behaviours (TRP) (Krueger, Reilly, & Carsrud, 2000). As earlier presented, the theory of planned Behaviour proposed that an

individual's intention is dependent on their attitudes towards their manners, the subjective norm, and the perceived behavioral control (Giagtzi, 2013; Kibler, 2012; Ngugi et al., 2012; Rusterberg, 2014).

## 1.4. Entrepreneurial Characteristics

Since it is entrepreneurs who start a business (Frese & Gielnik, 2014), the impact of their real inspirations and qualities can not be disregarded when planning mediations pointed toward crating future entrepreneurship. (Baum et al., 2006) recommended a reconsideration of entrepreneurial traits' impact if a better understanding of the entrepreneurship method is achieved. A similar call was made by (Carland, & Stewart, 1996), who proposed that it is difficult to understand the dance (read entrepreneurship) without first understanding the artist (read entrepreneur). Arguably, rethink individual traits makes sense in the current condition where business-related educational interventions gradually become famous. The entrepreneur has become a fundamental unit in a modern and creative society. Thus, understanding the business person's mind is critical if effective educational and training programs focused on the future and practicing entrepreneurs are to be planned.

Also, there are suggestions that people's responsiveness entrepreneurship support interventions change based on mental attributes (Radipere, 2012). Individuals with qualities like a requirement for accomplishment, risk-taking propensity, and locus of control have been more open to entrepreneurship education. Outcomes such as increased entrepreneurship intention are compared with those who display less of those characteristics (Hansemark, 2003), hence the call to focus more resources on developing more manageable individuals.

However, note that these findings came from studies that over-focused on the significant five personality attributes (Openness, Conscientiousness, Extraversion, Agreeableness & Neuroticism) that did not accurately define the idea of entrepreneurial intentions. Considerable past research was hampered by definitional ambiguities of the concept (Fayolle & Linan, 2014; Linan & Fayolle, 2015).

Innovation is the course of turning thoughts and knowledge into new value through creative thinking. Innovativeness is a vital part of entrepreneurship. Innovativeness is the capability and

propensity of entrepreneurial leaders. To think innovatively and identify opportunities to crop new and practical thoughts, create new markets, present new products and services (Chen, 2007) (Gupta, MacMillan, & Surie, 2004). Research results have indicated that innovation is a primary motive in starting a new business and also has an essential influence on venture performance (Hisrich, Peters, & Shepard, 2008)

Risk-taking propensity refers to a tendency to take or escape risks. Study results also provide evidence that individuals with a more extensive risk acceptance had more vital entrepreneurial intention levels (Hmieleski & Corbett, 2006). (Gurol & Atsan, 2006) found that students with entrepreneurial feelings had upper notches in risk-taking tendency than students with no such feeling. Although Zhao et al. (2010) claimed that risk tendency is the best forecaster of entrepreneurial intentions among other entrepreneurial traits, it is not necessarily related to the entrepreneurial presentation.

Competitiveness has not been characteristically highlighted as an entrepreneurial personality trait in entrepreneurship study, yet it looks to be a considerable personality trait linked to new business creation. Years ago, Schumpeter stressed the role of competitiveness as the main inspiration in attracting entrepreneurial action. Competitiveness is related to the necessity for accomplishment, which positively connects with venture performance (Rauch & Frese, 2000).

Self-efficacy is defined as a person's self-confidence in their aptitude to execute specific jobs and capabilities (Bae et al., 2014). From an entrepreneurship perspective, self-efficacy is related to risk-taking, innovativeness, pro-activeness, and competitive aggressiveness (McGee et al., 2009). Entrepreneurship education also enables business planning to be taught that builds skills needed to get finance and funding (Wang et al., 2002; Krueger et al., 2000) found that entrepreneurship education encourages better interaction with successful business owners fosters the progress of self-efficacy. Stumpf, Brief, & Hartman (1987) also found that greater success expectations are related to educational training.

## 1.5. Entrepreneurial Intention Models

For understanding, the entrepreneurial intention needs to utilize a rational and robust theoretical layout that sufficiently replicates new business deliberately. In writing, might intention models are established. Nevertheless, Shook, Priem, & McGee (2003) suggest that future work on

entrepreneurial Intentions should try and integrate and cut back the quantity of many intention models.

Researchers have proposed different intention models. Among them, (Bird, 1988), a model which was further evolved by (Boyd & Vozikis, 1994), the Shapero model (Shapero & Sokol, 1982) tested by (Krueger N. F., 1993), and Azjen's model (Ajzen, 1991).

Nevertheless, two main intention models recognized in writing (Shook & Priem, 2003; Fayolle et al., 2006; Gelderen et al., 2008) has been increasingly utilized since the 1990s (Autio et al., 2001). Ajzen's theory of planned behavior (TPB) describes intention-supported behavior, subjective norm, and perceived behavioral control.

Second is Shapero's model named entrepreneurial event theory. It gets an entrepreneurial intention from the perceived attraction, perceived possibility, and the tendency to follow the opportunities. Krueger, Reilly, and Carsrud (2000) support that the two models are commonly compatible. Two constructs of the Shapero model perceived desirability, and perceived possibility, is indistinguishable from the concept of planned behavior's perspective to manners and perceived behavioral management (Autio, Keeley, Klofsten, Parker & Hay, 2001). The many distinctions between the two models are that Azjen uses abstract standards instead of Shapero's inclination to act. Each model is tested and applied, gets observational provision. After observing each model (Krueger, Reilly, & Carsrud, 2000), both models give a vital instrument for understanding the process of Entrepreneurial emergence.

In this paper, the TPB is applied to find the influence of entrepreneurship education on entrepreneurial intentions; based on personal initiative, creativity, and opportunity recognition. TPB has been over and over applied and tested, giving a valid research structure. Similarly, it tends to be applied to practically all intentional behaviors and satisfies outcomes in varied fields, including a professional career choice. (Ajzen, 2001).

### 1.5.1. Overview of the Shapero Entrepreneurial Event Theory

Shapero and Sokol (1982) define entrepreneurship as a wonder. Shapero and Sokol also describe the entrepreneurial event described by an entrepreneurial demonstration performed by either a

person who does at least one entrepreneurial act, somebody who is a full-time businessman, or even a part-time businessperson. The entrepreneurial event establishes:

- Initiative taking
- Consolidation of resources
- Management of the organization
- Relative autonomy
- Risk-taking

Shapero and Sokol's (1982) contention portrays entrepreneurial intentions as subject to the view of individual attraction, individual desirability, feasibility, and propensity to act. Dissimilar to the TPB model (Ajzen, 1991), Shapero's Entrepreneurial Event Model is an Intention model explicitly intended for entrepreneurship (Krueger, Reilly, & Carsrud, 2000).

Perceptions of desirability and feasibility are results of social situations and help figure out which activity will be genuinely considered, and from that point sideways; these lines are taken. In that capacity, people have shifting perceptions of desirability and feasibility. The accompanying aspects additionally impact.

**Perceived Desirability and Perceived Feasibility**

Perceived desirability is impacted by culture, family, peers, partners, tutors, etc. Perceived feasibility is impacted by money related help, different sorts of help, coaches, partners, so forth (Shapero & Sokol, 1982). Krueger (1993) positions these two builds inside mentalities towards intentions, including that an adjustment in these perspectives will influence manners by influencing intention.

**Propensity of Act**

The propensity to act is the affirmation of whether an individual will focus on the activity of starting a business (Shapero and Sokol, 1982). Krueger (1993) compares its impact to that of an arbitrator towards intentions as this process is not oversimplified and is somewhat unpredictable. The propensity to act may as the decider where perceived feasibility and perceived desirability have some limit.

Krueger (1993) outlines Shapero's Entrepreneurship Event model in two steps: founders should observe the starting a new venture is "credible" (i. e., they have aimed toward entrepreneurship). Starting a new business must be a realistic opportunity. Second, the new-venture start requires

some sort of accelerating (or "displacing") event. Therefore, legitimacy needs at least a threshold level of feasibility and desirability, and propensity to act upon the chance.

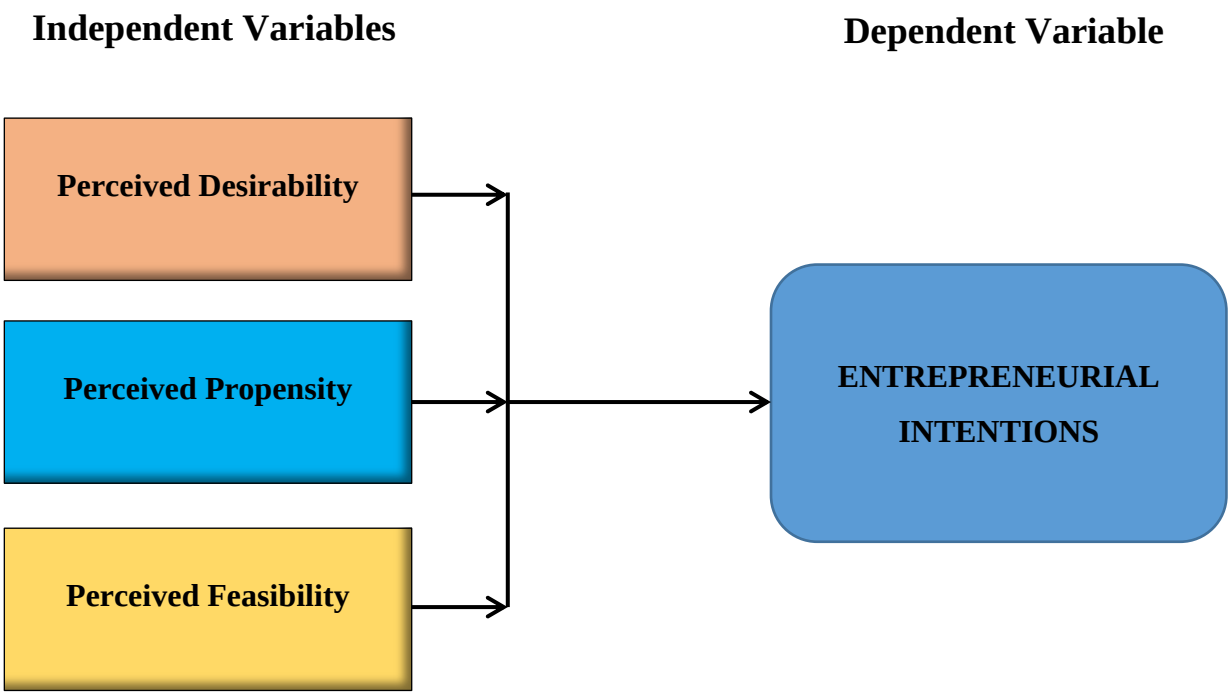


Figure 1. Shapero's Model of Entrepreneurial Intentions (Source- Ngugi, Gakure, Waithaka, & Kiwara, 2012)

Being mentality-based is a consequence of perception, which may suggest that they could be learned or created. Accordingly, for strategy implementers to make entrepreneurship appealing, they would need to make business more attractive. To expand an enterprise's appeal, need to build the recognitions around feasibility and desirability- these should ultimately influence intentions.

### 1.5.2. Overview of Theory of Planned Behaviour (TPB)

The theory of planned behavior is that this paper's theoretical structure helps identify entrepreneurial intentions (Heuer & Kolvereid, 2014). it had been initially developed by Ajzen (1991) to know intentions that may facilitate live actual individual behavior. Within the context of entrepreneurship education, it helps to research the processes resulting in entrepreneurial behavior. The speculation of planned behavior (PB) comes from psychological science studies because it focuses on attitudes, subjective norms, and perceived activity management (Ajzen, 1991).

The idea of the theory of PB is to use intention as a substitution for behavior. (Ajzen, 2005) suggested that once the probability of success is high, people can focus a lot on their intentions. This implies that venture creation can result once intentions are accustomed to live actual behavior (Kolvereid & Isakan, 2006). Supported the speculation of planned behavior, factors that manipulate entrepreneurial intention and demographics, personal initiative, creativity, and opportunity recognition. These variables influence entrepreneurial intention, which successively affects the start-up rate of business ventures.

The TPB indicates that psychological feature structures and intention got to be modified for learning to happen (Heuer & Kolvereid, 2014). Psychological feature structures will embody an individual's fundamental behavior influenced by data content (Krueger, 2009). The acquisition of information will improve amendment behavior, entrepreneurial intentions area unit compact by learning outcomes. As people learn different behavior and alter their attitudes, this can affect their intentions to be entrepreneurial. The idea of planned behavior focuses on attitudes, norms, and behavior, that area unit key interactions that a person has that control their intentions (Beadnell et al., 2007).

The TPB is measured to be a helpful definition for planning involvements and, therefore, analyzes the efficaciousness of those involvements in dynamic philosophies that guide the behavior's act (Ajzen, 2011). A discussion of the 3 in theory autonomous elements of intentions within the TPB follows:

**Attitude towards the behavior:**

Attitude toward the conduct or personal attraction mentions how much the individual holds an associate degree overall positive or negative individual valuation concerning being a businessperson. Ajzen (2005) claims that folks develop attitudes supported by their beliefs concerning performing arts behavior implications. Such consequences embody each intrinsic and adventitious reward as monetary rewards, independence/autonomy, personal rewards, and family security, all of that do influence favorably the intention to begin a business (Vanevenhoven & Liguori, 2013). Negative or pricey result expectations like perceived risk related to entrepreneurial activities influence unfavorably the intent to begin their own business.

**Subjective norms:**

Subjective norms derive from persons' beliefs that significant others or groups approve or disapprove of performing a given behavior, or these social referents themselves engage or do not engage in it (Ajzen, 2005). Significant others may include an individual's parents, spouse, close friends, co-workers, and even professionals in the behavior of interest. When individuals believe that the most significant referents with whom they are inspired to obey should do the behavior, they will observe social pressure to perform it and vice versa. In general, subjective norms incline to contribute a lot of feeble to the intention of looking at the persons' tendency to evolve and temperament characteristics (Armitage & Conner, 2001)

**Perceived behavioral control (PBC):**

PBC refers to persons' assessment of the degree to which they can act a given behavior. Control beliefs determine the availability of issues that can facilitate or impede the behavior's performance (Ajzen & Cote, 2008). These issues may be external or internal. It also includes the accessibility of resources, opportunities, material, skills, aptitudes, emotions, and compulsions. It is also dependent on others' experiences, information about the behavior, observing the acquaintance's behavior, and other factors that increase/decrease the perceived difficulty of acting the behavior (Ajzen, 2011). Persons can feel capable of acting entrepreneurial behavior (EB) when accepted and positively valued by others in society (Linan, Nabi, & Krueger, 2013). Optimistic assessments of the EB in both the closer and the social environment enhance one's perception of taking entrepreneurial skills, influencing perceived behavioral control. It was also discovered that the positive valuation of the EB by individuals in the closer environment raises the knowledge about the entrepreneurial environment (awareness of relations, support systems, and access to particular loans), which enhances perceived behavioral control.

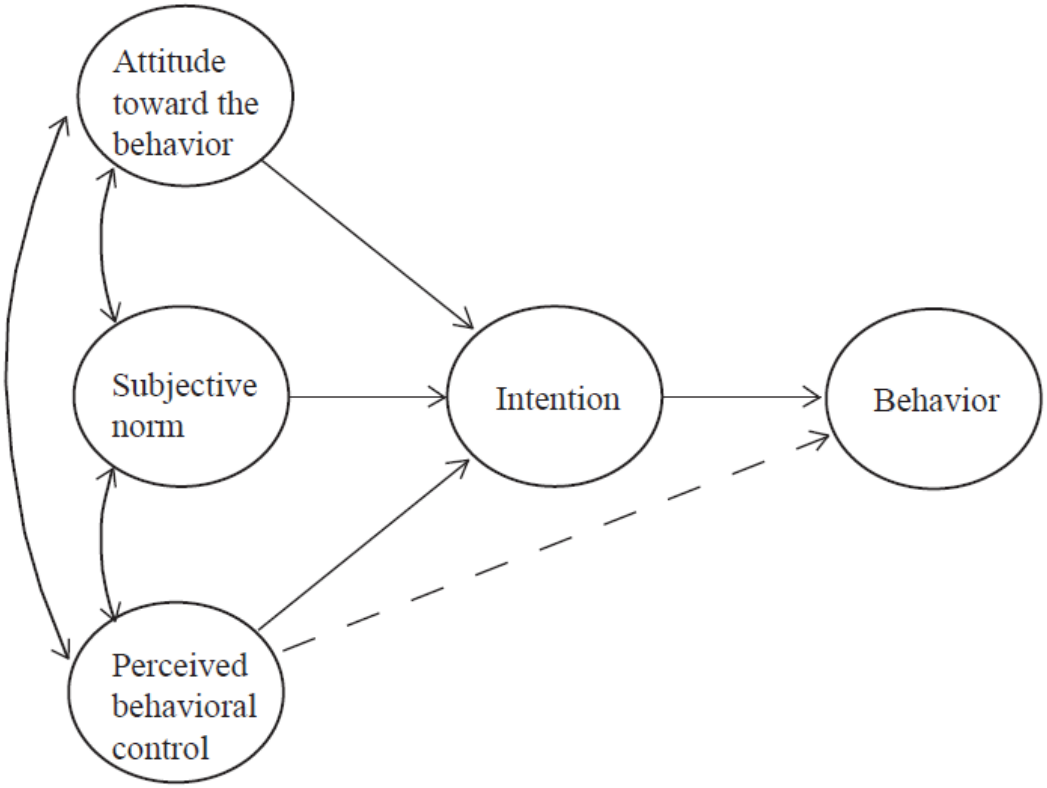


Figure 2. Theory of Planned Behavior (Source- Ajzen (1991), p. 182)

Depiction from the literature shows that organizations that provide entrepreneurial support and their services (whether funding, information, training, mentoring, or technical assistance) should be accessible to ensure success in encouraging individuals to start their businesses. There is also a need to increase or facilitate networking opportunities with entrepreneurs, such as information sharing relating to opportunities. These actions can enhance the perceived personal capability of starting a business.

## 1.6. Entrepreneurial Intention from a Theory of Planned Behaviour Perspective: Proposed Model and Hypotheses Development

More educational courses now highlight an entrepreneurial method for learning, which is different from the old-style teaching approach in a classroom setting (Jones & Iredale, 2014). This increased focus on entrepreneurship benefits has been combined with more scholars wanting to recognize how an entrepreneurial mindset can be improved (Mclarty et al., 2010; Ratten, 2014). A method to evaluate entrepreneurship education is to emphasize entrepreneurial intention and the factors that influence these manners. Figure 03 shows the proposed model, which relates demographic variables, personal initiative, creativity, and opportunity recognition to entrepreneurial intention.

Various existing research has discovered EE as a positive influencer of entrepreneurial behavior. Such (Farashah, 2013) noted that people who had finished the business course would probably have higher entrepreneurial intentions. Nearly, (Kuehn, 2008) and (Keat, Selvarajah, & Meyer, 2011) additionally kept up that entrepreneurship education affected entrepreneurial intention. In another research, (Othman et al., 2015) establish that the link between entrepreneurship education and entrepreneurial spirit was motivated by an individual's inner locus of control. Without a doubt, entrepreneurship education is planned to empower entrepreneurial behavior and attitude among people, nurture entrepreneurial persons, and formation of new businesses (Keat et al., 2011). It is accepted that EE is significant in developing peoples' entrepreneurial abilities.

According to Bandura (2001), an intention could represent a future course of action to be performed; it is not merely an expectation of future actions but a proactive commitment to bringing them about. Intentions and actions are different characteristics of a functional relation disconnected in time. Intentions core on plans of actions. With the absent intention, the action is unlikely. Intentions represent the assumption that one will perform a particular behavior. Logically, intent precedes action.

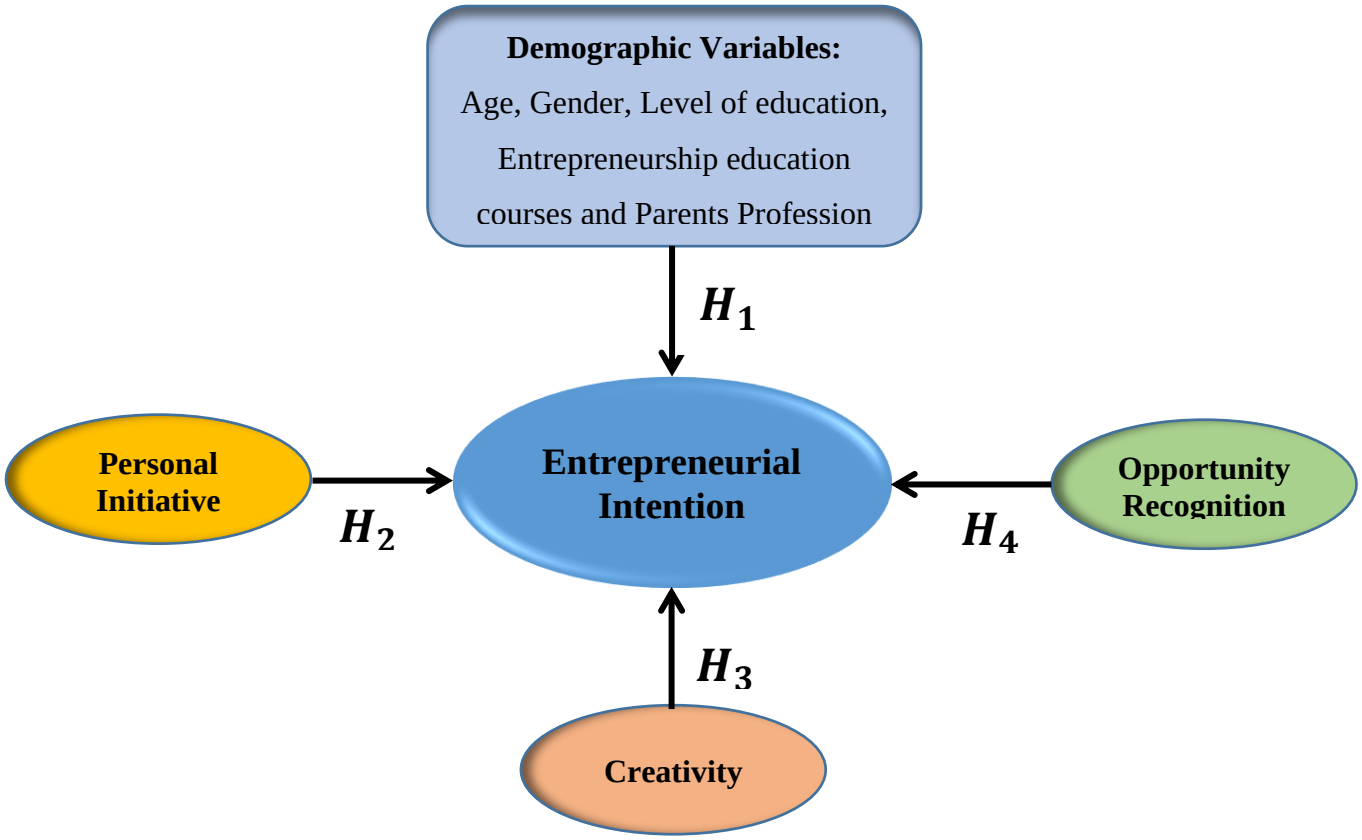


Figure 3. Proposed Research Model

**Demographic Variables**

One of the most significant factors influencing persons' entrepreneurial intention is demographic, as they help understand how a person might behave in the forthcoming. Due to demographics, age, gender, graduation rate, and employment profession affect persons' capability to be entrepreneurial. The employment profession of a person's parents assists in deciding whether they will involve in entrepreneurial behavior. Heuer & Kolvereid (2014) focus on how the kids of self-employed parents are more likely to have higher entrepreneurial intentions. Duchesneau & Gartner (1990) also support this opinion that having one or both parents self-employed leads their kids to have a more entrepreneurial mid-set. This may be that persons learn by experience, and the growth of entrepreneurial behavior can be influenced by family background.

Another demographic variable influencing entrepreneurial intention is gender. The generalization of entrepreneurs is that males are more entrepreneurial because their behavioral attributes are more orientated to risk-taking activity (Bae et al., 2014). A previous study by Weber (2011) proposed a gender difference in career ambitions because of skills. This has

prompted a stream of research recommending that men have higher entrepreneurial aims than ladies (BarNir et al., 2011; Haus et al., 2013). Accordingly, gender appears to influence entrepreneurial aim as it can instruct females to be more entrepreneurial (Williams & Subich, 2006). This may imply that entrepreneurship education may be required more or females to expand their entrepreneurial intentions (Bae et al., 2014).

Age is another demographic factor affecting EI. This is because the entrepreneurial process of learning can help advance more independence in the classroom as individuals learn various manners. Governments worldwide are keen on how they can influence entrepreneurial movement (Raposo et al., 2008). This implies by focusing on the time of entrepreneurs can help create jobs and encourage economic development (Heuer & Kolvereid, 2014).

Educational levels, for example, graduation from secondary school, can likewise influence entrepreneurial intentions. This is because of the significance of learning by the affiliation that fuses experimentation in an entrepreneurship context (Minniti & Bygrave, 2001). Graduating from high school can help shape a person's confidence and improve their entrepreneurial intention. Thus, the below suggest the following hypothesis:

***Hypothesis 1: Demographic variables positively influence entrepreneurial intention.***

**Personal Initiative**

An entrepreneur's personal initiative (PI) decides the movement and course for the business. As per Garter (1988), an enterprise's success is not identified with the individual who claims or starts the business, but rather to the action and initiative a business person took. Personal initiative deals majorly with entrepreneurs' self-starting nature, their proactive attitude, and capacity to look for and grasp the opportunity, discover answers to overcome barriers that are, or maybe obstacles to their prosperity success (Frese et al., 1996; Frese et al., 1997).

The idea of PI was first presented by (Frese et al., 1996) while studying the performance of a group of East German employees after the unification of Germany. Frese clarified personal initiative as the work behavior of an individual. (Frese et al., 1996; Frese et al., 1997). Moises (2012) likewise concluded that opportunities well utilized are more pivotal than the team's ability because the right opportunity exploited ensures the business's long-term achievement.

Planning, strategic thinking, and opportunity recognition have been depicted as a personal initiative. As indicated by the Facets model of PI, individual activity is n three sections- self-starting, pro-active, and overcoming obstacles (Frese & Fay 2001; Glaub et al., 2014; Solomon et al., 2013). Self-starting supports entrepreneurs to take the lead of small resources and opportunities available to them and be creative (Fiet, 2002)

Development of a positive attitude to entrepreneurship is high on the policy plan of a few economics, and entrepreneurial behavior/activity is a component of entrepreneurial initiative (Ajzen, 1991) and (Sasi & Sendil, 2000). Since entrepreneurial initiative impacts entrepreneurial manners, the prescient force can be upgraded. Being initiative is the way to turning into a successful entrepreneur. Thus, it offers the enterprise a fatty build that joins the inventive utilization of budgetary assets and various non-financial assets that lead the would-be entrepreneurs to begin their business (Sasi & Sendil, 2000). The personal initiative could also mean development, genius, creativity, commitment, vision, flexibility, and confidence. Through occasions of change, entrepreneurs are frequently active by spotting opportunities in the environment and utilizing their creativity to bring about innovation. Subsequently, the initiative is a crucial trait for an entrepreneur (Russell & Faulkner, 2004).

Therefore, based on these researchers' findings, it is safe to say that high personal initiative entrepreneurs are average "go-getters" and persist in all their work until results are achieved (Raduan et al., 2006). Such an individual initially considers the difficulties ahead and creates systems to battle them, identifies emerging opportunities, and takes actions as issues arise. Consequently, it is correct to deduce that entrepreneurship is about identifying and exploiting opportunities (Shane & Venkataraman, 2000), creativity (Daylan et al., 2013), and expansion of assets. There is a summary, the roles that personal initiative plays in an entrepreneur's career journey. Therefore, based on the literature suggest the following hypothesis:

***Hypothesis 2: Personal Initiative positively influences entrepreneurial intention.***

**Creativity**

Presently, higher education has an international trend to incorporate creativity as a critical substance to make the entrepreneurial course successful (Lautenschlager & Haase, 2011) and raise entrepreneurial intention (Zampetakis & Moustakis, 2006). There are many definitions of

creativity. Moreover, there is a trend to think about creativity as a critical skill for the entrepreneur. As such, creativity is now also considered an essential success factor in entrepreneurship (Fillis & Rentschler, 2010).

There are, at least, two ways of assumption about creativity. As indicated by one of them, creativity is a skill that is practically similar to a muscle that can be trained. The other one expresses that creativity is something we are or not born with, and, in that case, trying to improve it is almost pointless. Following the first way, creativity can be influenced by educational efforts (Hamidi et al., 2008; Penaluna et al., 2010). Due to the economic emergency and the lack of jobs creation from firms, universities' entrepreneurial courses are essential to increase students' self-employment.

There is evidence that students who enrolled in an entrepreneurship course saw themselves as more creative after completing the course and improved on creating more and a more range of concepts than students not enrolled in the course both in pre-and post-tests ( (Schmidt, Soper, & Facca, 2012). Though empirical evidence also demonstrates that creativity is not straightforwardly associated with the viability of the business idea. However, it is fully facilitated by those opportunity search policies that are creative and based on knowledge gaining (Heinonen, Hytti, & Stenholm, 2011). Finally, innovative business behavior can be portrayed as an act of creativity, so a link is established between entrepreneurship and innovative business practices. Hence, the third hypothesis is the following:

***Hypothesis 3: Creativity positively influences entrepreneurial intention.***

**Opportunity recognition (OR)**

The concept of OR is noticeably established in entrepreneurship literature (Wang, Ellinger, & Wu, 2013). Plenty of academic studies are concerned with how opportunities are recognized, which lies at the entrepreneurship domain's core (Ardichvili, Cardozo, & Ray, 2003). Baron (2006) describes opportunity recognition as the psychological process (or processes) through which people conclude that they have distinguished an opportunity. Gregoire, Barr, & Shepherd (2010) provided a more explicit definition of opportunity recognition. They characterize the opportunity recognition method as efforts to comprehend signs of the process (e.g., new information about new conditions) to form views about whether or not enacting a strategy to

address this change could prompt net advantages. For example, they regard benefits, growth, competitive jockeying, and different types of individual or organizational gains. For Grégoire et al. (2010), opportunity recognition is in this way connected with ecological change and with entrepreneurs' capacities to handle data. This definition adjusts to the comprehension of opportunity recognition measures introduced in this exposition. Opportunity acknowledgment does not just include an "Aha" –moment but much more of a recursive, iterative process including information creation, data obtaining, and reflection on new findings (Limpkin & Lichtenstein, 2005).

Opportunity recognition can happen during new ventures or in already established companies (Hayton, Chandler, & DeTienne, 2011). Past research results demonstrate that the opportunity recognition measure is virtually impacted by an assortment of variables (George, Parida, Lahti, & Wincent, 2016). For example, cognizance (Tumasjan & Braun, 2012), social networks (Garcia-Cabrera & Garcia-Soto, 2009), personality attributes (Ardichvili, Cardozo, & Ray, 2003), prior knowledge (Acs et al., 2009), environmental circumstances (Tang, 2009), and the opportunity itself (Gregoire & Shepherd, 2012). This way is shaped by objective and emotional variables (Gregoire, Barr, & Shepherd, 2010). Regardless of the many significant findings regarding opportunity recognition, critical inquiries remain uncertain (George et al., 2016). An entrepreneur trying to perceive promising opportunities "should someway see, gather, understand, and apply information (Ozgen & Baron, 2007) on his condition. Entrepreneurs' data search is hence near related to the opportunity recognition process. Based on this literature, therefore propose the following hypothesis:

***Hypothesis 4: Opportunity recognition positively influences entrepreneurial intention.***

# 2. RESEARCH METHODOLOGY

This chapter is based on a cross-sectional survey that allows the research hypothesis developed from the literature review to be tested. The survey contained several survey items developed from previous research to measure personal initiative, creativity, opportunity recognition, and demographic factors influencing entrepreneurial intention. The methodology enables a series of hypotheses to be tested to understand an individual's intention to start a business venture. This permits a confirmatory approach in which each hypothesis is either supported or not supported by the data analysis. The chapter is divided into various subchapters such as the research design, sampling, sample size, data collection instrument and validation, data analysis method, and the limitation of the methodology accepted.

## 2.1. Research Design

This study used statistical analysis to achieve its specified objectives, and the research design accepts a quantitative research approach. This can be applied to research work that can be expressed in quantity (Kothari, 2004).

An online survey was conducted, and the survey instrument was compiled based on three sub-competencies personal initiative, creativity, and opportunity recognition. Also, with demographic factors such as gender, age, level of education, specialty, job next of studies, parents occupation, and entrepreneurship education courses, using the empirically tested constructs of these competencies adopted to the context of entrepreneurship.

The research process follows the logic of entrepreneurship, i.e., it entails identifying a problem or need, business idea generation, business opportunity recognition, development, and execution. This learning approach in the study is very much student-oriented. In the parallel of the business idea development process, attention has been paid to developing students' transferal skills, e.g., self-management, creativity, personal initiative, opportunity recognition, and others.

## 2.2. Sampling, Procedure, and Sample Size

A total number of 824 students participated in this research. The quantitative online survey involves master and bachelor students studying at the entrepreneurship courses during autumn 2018 in Estonian universities. Below frequency tables show the summary survey statistics related to the respondent's details. Table 1 shows that Half of the participants were females (50.7%). The male and female relationship is relatively equivalent; it represents a 1:1 gender balance within the participants.

Table 1: Gender Distribution

| | | Frequency | Percentage | Valid Percentage | Cumulative Percentage |
|---|---|---|---|---|---|
| **Total** | | 824 | 100% | 100% | |
| **Gender** | Female | 418 | 50.7% | 50.7% | 50.7% |
| | Male | 406 | 49.3% | 49.3% | 100% |

Source: Online survey data; author's compilation

The age distribution of the participants shows in table 2. The respondent's ages range from 17 to 57 years, and within a total of 824 respondents, there are a total of 536 respondents were above 22 years old, making up 65.05% of the sample size. However, the outstanding 34.95% accounted for those aged 22 or below. Less than 5% of respondents were age 40 years.

Table 2: Age Distribution

| | | Frequency | Percentage | Valid Percentage | Cumulative Percentage |
|---|---|---|---|---|---|
| **Total** | | 824 | 100% | 100% | |
| **Age group** | 17-22 | 288 | 34.95% | 34.95% | 34.95% |
| | 23-30 | 361 | 43.81% | 43.81% | 78.76% |
| | 31-40 | 134 | 16.26% | 16.26% | 95.02% |
| | 41-50 | 37 | 4.49% | 4.49% | 99.51% |
| | 51-57 | 4 | 0.49% | 0.49% | 100% |

Source: Online survey data; author's compilation

The sample is international; bigger groups of Estonians (67.5%) and the rest are Russians, Finns, and others (Table 3).

Table 3: Nationality Distribution

| | | Frequency | Percentage | Valid Percentage | Cumulative Percentage |
|---|---|---|---|---|---|
| **Total** | | 824 | 100% | 100% | |
| **Nationality** | Estonian | 554 | 67.2% | 67.2% | 67.2% |
| | Russian | 105 | 12.7% | 12.7% | 79.9% |
| | Other | 165 | 20.1% | 20.1% | 100% |

Source: Online survey data; author's compilation

In terms of school distribution (Table 4), 80.70% of respondents were studying at Tallinn University of Technology (TalTech), and the remaining 19.30% were part of the University of Tartu, Tallinn University, and Estonian Business School (EBS).

Table 4: School Distribution

| | | Frequency | Percentage | Valid Percentage | Cumulative Percentage |
|---|---|---|---|---|---|
| **Total** | | 824 | 100% | 100% | |
| **School distribution** | TalTech | 665 | 80.70% | 80.70% | 80.70% |
| | University of Tartu | 65 | 7.89% | 7.89% | 88.59% |
| | Tallinn University | 46 | 5.58% | 5.58% | 94.17% |
| | EBS | 48 | 5.83% | 5.83% | 100% |

Source: Online survey data; author's compilation

Table 5 shows the respondent's study level, where 61.5% of students from masters level and the rest 38.5% are from bachelor level.

Table 5: Respondents level of education

| | | Frequency | Percentage | Valid Percentage | Cumulative Percentage |
|---|---|---|---|---|---|
| **Total** | | 824 | 100% | 100% | |
| **Level of Study** | Masters | 507 | 61.5% | 61.5% | 61.5% |
| | Bachelor | 317 | 38.5% | 38.5% | 100% |

Source: Online survey data; author's compilation

In terms of respondent's field of study (Table 6), the majority of respondents are from the business field (62.30%), and the rest (37.70%) are from non-business related subjects.

Table 6: Respondents field of study

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| **Valid** | Business Course | 513 | 62.30% | 62.30% | 62.30% |
| | Non Business Course | 311 | 37.70% | 37.70% | 100% |
| | Total | 824 | 100% | 100% | |

Source: Online survey data; author's compilation

Table 7 shows the student's employment situation. 58.25% were employed, and the rest, 41.75%, were unemployed. The employed student's percentage is similar to masters-level respondents (Table 5) percentage of 61.5%.

Table 7: Respondents Employment Situation

| | | Frequency | Percentage | Valid Percentage | Cumulative Percentage |
|---|---|---|---|---|---|
| **Total** | | 824 | 100% | 100% | |
| **Employment Situation** | Employed | 480 | 58.25% | 58.25% | 58.25% |
| | Unemployed | 344 | 41.75% | 41.75% | 100% |

Source: Online survey data; author's compilation

Table 8 shows that before autumn 2018, almost 75% of students already participated in an entrepreneurship course.

Table 8: Respondent's previous Entrepreneurship course exposure

| | | Frequency | Percentage | Valid Percentage | Cumulative Percentage |
|---|---|---|---|---|---|
| **Total** | | 824 | 100% | 100% | |
| **Respondents previous Entrepreneurship Course** | Yes | 614 | 74.5% | 74.5% | 74.5% |
| | No | 210 | 25.5% | 25.5% | 100% |

Table 9 shows the independent and dependent factors and the particular, measurable techniques used to examine the conceptual model. The dimension, variable, frequencies of the statistics are declared enclosed in the survey questionnaire given to students within the sample.

Table 9: Variables and statistical techniques used in research

| | Dimension | Variables | Frequency |
|---|---|---|---|
| Independents Variables | Demographic Characteristics | Age | Descriptive measures (mean, standard deviation, minimum and maximum) |
| | | Gender | |
| | | Level of Education | |
| | | Parents work in public or private company/organization | |
| | | Parents self-employed | |
| | | Other family members (siblings, grandparents) self-employed | |
| | | Close friends self-employed | |
| | | Entrepreneurship education courses | |
| | Psychological Factors | Personal Initiative | Descriptive measures, Pearson correlation coefficient, and Cronbach's Alpha |
| | | Creativity | |
| | | Opportunity recognition | |
| Dependent Variables | Liberal Intention | Entrepreneurial Intention | Multiple linear regression |

Table 10 states every one of the hypotheses used to test the conceptual model and the statistical methods utilized in the data analysis

Table 10: Hypotheses and statistical techniques

| Hypotheses | Technique |
|---|---|
| *Hypothesis 1:* Demographic variables positively influence entrepreneurial intention | Multiple Linear regression |
| *Hypothesis 2:* Personal Initiative positively influences entrepreneurial intention. | |
| *Hypothesis 3:* Creativity positively influences entrepreneurial intention. | |
| *Hypothesis 4:* Opportunity recognition positively influences entrepreneurial intention. | |

## 2.3. Data Collection, Instrument Reliability, and Validation

Data collection was done through a standard questionnaire via an online survey. The survey was conducted after complete the academic entrepreneurship course, and the survey instrument was compiled, supported by three sub-competencies.

Besides collecting demographic data, students also rate 27 statements that supported the three factors being analyzed. For personal initiative, 13 statements, three are developed for creativity, whereas 11 statements are for opportunity recognition. These factors are measure on a 5-point Likert scale with 1 representing disagree; 2-rather disagree; 3-agree and disagree; 4-rather agree; 5-totally agree. The respondents were guaranteed that their responses would be kept private and classified and used for academic purposes. The questions presented to the students according to the factors being studied with scales were found in Appendix 1, 2, and 3. The measure is a set of self-assertions that the respondent must assess dependent on their experience and behavior. Therefore, the respondents have assessed their past behavior in a five-point framework. Answers to the questions do not require previous experience in a specific area but require some self-analysis readiness.

Before more in-depth analysis, constructs under the study of this research are evaluated for reliability and validity. Cronbach's Alpha represents the internal consistency of the variables being analyzed. The acceptable range should be at least 0.70, and the higher the coefficient, the better (Coakes, Steed, & Price, 2009).

The question measuring creativity is based on the works of Karwowski (Karwowski et al., 2013; Karwowski, 2014) and is including three statements, which are evaluating the self-efficacy connected with creativity (e.g., "I think that I am good at suggesting original solutions to problems"). The Principal Component Analysis (PCA) showed that this is a one-factor measurement tool, and the internal reliability variable Cronbach α is 0.85

The measurement tool for the personal initiative is recognized by Frese et al., (1997) involves 13 statements and, based on PCA, presents three factors: 1) Purposeful acting (e.g., "Every problem is a challenge for me that I need to solve immediately"); 2) taking the initiative (e.g., "If I see something I do not like, I fix it"); 3) inclusion others (e.g., I discover only individuals that follow my actions and me). The internal reliability variable Cronbach α is 0.89

The tool for opportunity recognition is based mainly on the works of (Tang, Kacmar, & Busenitz, 2012) and Kyndt and Baert (2015). It includes overall 11 statements, and according to PCA, these statements are forming two factors. 1) opportunity discovery (e.g., "I always keep a lookout for new business opportunities (ideas) when searching for information"); 2) opportunity evaluation (e.g., "I can differentiate between money-making opportunities and not-so-profitable opportunities"). The internal reliability (Table 4) variable Cronbach α is 0.88.

Table 11. The descriptive characteristics of selected competencies (by factors)

| Factors of competencies | No of items | Mean | Standard Deviation | Minimum | Maximum | Cronbach α |
|---|---|---|---|---|---|---|
| **Creativity** | 3 | 3.91 | 0.88 | 1.0 | 5.0 | 0.847 |
| **Personal initiative** | 13 | 3.71 | 0.90 | 1.0 | 5.0 | 0.892 |
| **Opportunity recognition** | 11 | 3.76 | 0.91 | 1.0 | 5.0 | 0.882 |

Source: Online survey data; author's compilation

## 2.4. Method of Data Analysis

Well-structured administered questionnaires are delivered to the students online. Both descriptive and inferential statistical techniques are utilized to analyze the acquired data and test the hypotheses defined through the assistance of a software program like IBM SPSS Statistics (Version 25) and Microsoft Office Excel 2010.

A coefficient of correlation analysis is carried out to measure the association between the three constructs. Because the data is ordinal, the Pearson correlation coefficient is used. The uses of both descriptive and inferential analysis tools are adapted to the research for practical analysis. The three model Multiple Linear Regression statistical methods were utilized in the data analysis for testing the hypotheses.

The four hypotheses tested here are:

Hypothesis 1: Demographic variables positively influence entrepreneurial intention.

Hypothesis 2: Personal Initiative positively influences entrepreneurial intention.

Hypothesis 3: Creativity positively influences entrepreneurial intention.

Hypothesis 4: Opportunity recognition positively influences entrepreneurial intention.

# 3. RESULTS

This chapter concentrated on the presentation and analysis of data collected from the survey conducted via questionnaire. Data gathered are from 824 respondents studying various Universities in Estonia. Data size is large to provide more precise estimates of the process parameters.

## 3.1. Frequency Distribution of Data

The below table shows how the data were distributed and how they deviate from one another. The results of the descriptive analysis for the demographic data are found in Table 12.

Table 12. Mean and Standard Deviation of Demographics of the Data Sample.

| | N | Minimum | Maximum | Mean | | Std. Deviation |
|---|---|---|---|---|---|---|
| | | | | Statistic | Std. Error | |
| Gender | 824 | 1.00 | 2.00 | 1.50 | 0.017 | 0.50 |
| Age | 824 | 17.00 | 57.00 | **26.28** | 0.236 | **6.79** |
| Level of Education | 824 | 1.00 | 3.00 | **2.59** | 0.020 | 0.57 |
| Specialty | 824 | 1.00 | 2.00 | 1.39 | 0.017 | 0.48 |
| Job next to studies | 824 | 1.00 | 2.00 | 1.31 | 0.016 | 0.46 |
| Parents works in public or private company/organization | 824 | 1.00 | 2.00 | 1.77 | 0.015 | 0.41 |
| Parents self-employed | 824 | 1.00 | 2.00 | 1.59 | 0.017 | 0.49 |
| Other Family members (siblings, grandparents) self-employed | 824 | 1.00 | 2.00 | 1.59 | 0.017 | 0.49 |
| Close friends self-employed | 824 | 1.00 | 2.00 | 1.29 | 0.016 | 0.45 |
| Entrepreneurship education courses | 824 | 1.00 | 2.00 | 1.20 | 0.014 | 0.40 |

Source: Online survey data; author's compilation

The highest mean score of the distribution is 26.29 (age) and 2.59 (level of education). The highest standard deviation indicates that the ages of respondents are broadly spread in the data. (S=6.79), with the youngest respondent as 17 years of age, and the oldest, 57. Students of ages 22 and 23 were the highest represented ages across the data sample with frequencies of 9.80% and 9.60%. *(Appendix 4)*

There is a more even spread of the data for all other parameters measured. Respondents are in different institutions undertaking programs that spread across various disciplines (labeled as Speciality). The frequency distribution of students listed for non-business specialty programs is about one-third of the sample size. The bigger 62.30% are studying business-related programs *(Table 6).*

## 3.2. Inferential Analysis

IBM SPSS Statistics version 25, Pearson Correlation Coefficient was used to analyze and compare the significance of the three constructs, i.e., Creativity (CR), Personal Initiative (PI), and Opportunity Recognition (OR). Furthermore, the three linear regression models were used to testing the hypothesis and predict entrepreneurial intention.

### 3.2.1. Pearson Correlation Coefficient analysis for CR, PI, and OR

Table 13. Pearson Correlation Coefficient analysis for CR, PI, and OR

| | | CR | PI | OR |
|---|---|---|---|---|
| **CR** | Pearson Correlation | 1 | .478** | .403** |
| | Sig. (2-tailed) | | 0.000 | 0.000 |
| | N | 824 | 824 | 824 |
| **PI** | Pearson Correlation | **.478**** | 1 | .560** |
| | Sig. (2-tailed) | 0.000 | | 0.000 |
| | N | 824 | 824 | 824 |
| **OR** | Pearson Correlation | .403** | **.560**** | 1 |
| | Sig. (2-tailed) | 0.000 | 0.000 | |
| | N | 824 | 824 | 824 |
| **Correlation is significant at the 0.01 level (2-tailed). | | | | |

Source: Online survey data; author's compilation

Based on table 13, a moderate and positive correlation between creativity and opportunity recognition is 0.403 (40.3%). On the other hand, Personal Initiative and Creativity and Opportunity Recognition and Personal Initiative show a strong and positive correlation of 0.478 (47.8%) and 0.560 (56.0%).

This analysis was done at a confidence level of 99% at a two-tailed test, with P-values computed .000 respectively for all constructs.

The author’s opinion that concerning the outcome generated from the correlation table, it can be inferred that students' creativity is mostly not affected by opportunity recognition. However, creativity and personal initiative and opportunity recognition and personal initiative are strongly correlated. This means that a student taking the initiative and an opportunity evaluation mindset has a 48% to 56% probability of being an entrepreneur.

### 3.2.2. Multiple linear regression analysis; Dependent variable: Entrepreneurial Intention

Three models were used in the data analysis to comprehend the connections between the factors and entrepreneurial intentions. The first model assesses the impact of socio-demographic factors and entrepreneurial intention. The second model estimates the impact of the different variables that impact entrepreneurial intention. The last model, all the while assesses all factors from the conceptual model.

Table 14. Multiple linear regression analysis; Dependent variable: Entrepreneurial Intention (EI)

| | Model I | | | Model II | | | Model III | | |
|---|---|---|---|---|---|---|---|---|---|
| | **B** | **EP** | **p** | **B** | **EP** | **p** | **B** | **EP** | **p** |
| **Gender** | -0.021 | 0.061 | .735 | | | | -0.032 | 0.062 | .602 |
| **Age** | -0.003 | 0.005 | .514 | | | | -0.003 | 0.005 | .533 |
| **Level of Education** | -0.196 | 0.059 | **.001**** | | | | -0.192 | 0.059 | **.001*** |
| **Job next to studies** | 0.132 | 0.069 | .055 | | | | 0.140 | 0.069 | **.042*** |
| **Parents works in public or private company/organization** | -0.114 | 0.077 | .139 | | | | -0.122 | 0.077 | .112 |
| **Parents self employed** | -0.087 | 0.066 | .190 | | | | -0.091 | 0.066 | .172 |
| **Other Family members (siblings, grandparents) self-employed** | 0.070 | 0.065 | .276 | | | | 0.071 | 0.065 | .272 |
| **Close friends self employed** | -0.051 | 0.069 | .458 | | | | -0.056 | 0.070 | .429 |
| **Entrepreneurship education (Course)** | 0.111 | 0.076 | .141 | | | | 0.124 | 0.076 | .102 |
| **Creativity** | | | | -0.008 | 0.043 | .856 | 0.003 | 0.043 | .942 |
| **Personal Initiative** | | | | -0.103 | 0.060 | .086 | -0.119 | 0.060 | **.046*** |
| **Opportunity Recognition** | | | | 0.086 | 0.052 | .103 | 0.095 | 0.052 | .070 |
| **R Square** | 4.00% | | | 42.25% | | | 50.41% | | |
| **F** | 3.773** | | | 3.355** | | | 3.262** | | |
| *p<0.05; **p<0.01; B- Coefficient of non-standard regression; EP – Standard Errors; F – Statistic Coefficient of non-standard regression | | | | | | | | | |

Source: Online survey data; author's compilation

Table 14 shows the three linear regression models that predict entrepreneurial intention. In terms of socio-demographic factors included in model I, the F-statistics (3.773; sig. = < 0.001) shown that the data statistically fitted with the model. It means the demographic variable statistically significant and predicts the dependent variable. Moreover, the overall coefficient of determination R Square (0.040) indicated that demographic factors explain 4.00% of entrepreneurial intention variance.

It's also shown that "Level of Education" statistically significant, and predict the dependent variable, p-value .001** (B = -0.196; p < .01). It means the Master's degree students have significantly less entrepreneurial Intention than the students of Bachelor's degree.

Model II, the F-statistics (3.355; sig. = < 0.001) shown that the data statistically fitted with the model. The overall coefficient of determination R Square (0.4225) indicated that 42.25% of entrepreneurial intention variance is explained by creativity, personal initiative, and opportunity recognition (independent) variables.

It has also shown that the independent variables (creativity, personal initiative, and opportunity recognition) statistically significant but, unfortunately, no predictive values on the dependent variable. However, they are positively correlated with each other.

Model III, F-statistics (3.262; sig. = < 0.001), showed that the data statistically fitted with the model. It means all independent variables (demographic, creativity, personal initiative, and opportunity recognition) statistically significant and predicts the dependent variable. Furthermore, the overall coefficient of determination R Square (0.5041) indicated that all independent factors explain that 50.41% of the variance in entrepreneurial intention.

It's also indicates the same as model I for Level of Education p-value .001* (B= -0.192; p < .05), Job next to studies p-value .042* (B= 0.140; p < .05), and Personal Initiative statistically p-value .046* (B= -0.119; p < .05), significantly predict the dependent variable. In terms of demographic factors, the master's degree students have less entrepreneurial intention than bachelor's degree students. Moreover, the students who have a regular job with studies also show less entrepreneurial intention.

For the different personality dimensions in the analysis, it is detected in Models II and III that an advanced personal Initiative (p-value .046*) is associated with entrepreneurial intention (Model III: B = -0.119; p < .05). Although in model III, there was no direct predictive value found from the data analysis for creativity and opportunity recognition on entrepreneurial intention, as per Pearson correlation analysis, they are significantly correlated with each other.

### 3.2.3. Result for proposed Research Model

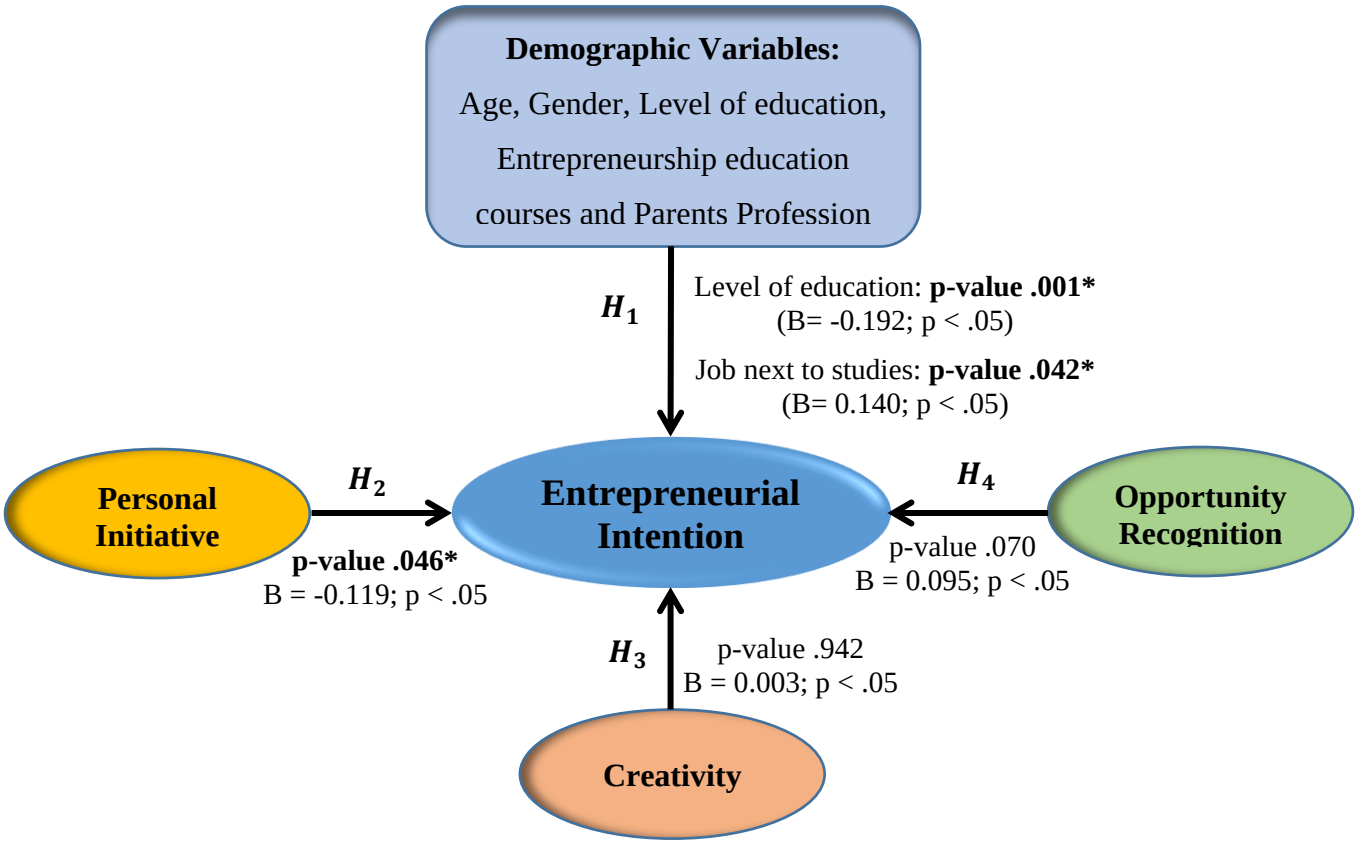


Figure 4: Result for the proposed Research Model

Figure 4 shows the connections between entrepreneurial Intention and independent variables. Results of this study show that demographic factors and personal initiative are the strongest predictors of EI. In first independent variable demographic factors, level of education p-value .001* (B= -0.192; p < 0.05) as p-value less than .05 (p < 0.05) it indicate that level of education statistically significant. Likewise, Job next to studies p-value .042* (B= 0.140; p < .05) statistical significance p-value less than .05 mean it also predict EI positively.

Second independent variable, PI statistical significance p-value .046* (B = -0.119; p < .05) also less than .05 means there is a stronger connection between EI and PI. It is positively predicted the PI influences on EI.

The third and fourth independent variables are CR and OR, with statistically significant p-values of .942 and .070, which are higher than .05 (p < .05), which means these two variables do not directly statistically predict the EI. However, they are positively correlated with each other.

The result also found R square 0.5041, which indicates that a 50.41% coefficient of determination is predicted from the independent variables and shows the association with the dependent variable.

### 3.2.4. Hypotheses Validation

Table 15. Hypotheses result from a summary

| Hypotheses | Validation | Results |
|---|---|---|
| ***Hypothesis 1:*** Demographic variables positively influence entrepreneurial intention | Validated | Bachelor's degree students and students without any other occupation have a higher entrepreneurial intention. |
| ***Hypothesis 2:*** Personal Initiative positively influences entrepreneurial intention. | Validated | Advanced personal initiative is related to a higher level of entrepreneurial intention. |
| ***Hypothesis 3****:* Creativity positively influences entrepreneurial intention. | Not validated | - |
| ***Hypothesis 4:*** Opportunity recognition positively influences entrepreneurial intention. | Not validated | - |

Source: Author’s compilation

Table 15 shows the results for all the tested hypotheses as developed from the conceptual model. The data analysis found support for **hypothesis 1**, the Level of education p-value .001* (B= -0.192; p < .05), as well as Job next to studies p-value .042* (B= 0.140; p < .05). It means the Master's degree students have significantly less entrepreneurial Intention than the Bachelor’s

degree students. Students without any other occupation in the survey, were the higher their entrepreneurial intention signifying support for demographic variables being important.

**Hypothesis 2** was supported by data analysis. Personal Initiative statistically p-value .046* (B= -0.119; $p < .05$), significantly predict the dependent variable. It is indicating that advanced personal initiative does influence entrepreneurial intention.

**Hypothesis 3** was not supported by data analysis. Creativity statistically p-value .942 (B = 0.003; $p < .05$) not significantly predict the dependent variable. It is meaning that creativity might not matter when intending to become an entrepreneur. Nevertheless, creativity is highly correlated (0.478**) with other independent variables.

**Hypothesis 4** also was not supported by the data analysis. Opportunity Recognition p-value .070 (B = 0.095; $p < .05$) not significantly predict the entrepreneurial intention. This indicates that opportunity recognition does not directly affect entrepreneurial intentions. However, opportunity recognition is highly correlated (0.560**) with the other independent variables.

# 4. DISCUSSION AND CONCLUSION

This chapter focuses on the research summary of the findings, conclusions, limitations, and recommendations based on tests. As stated in the introduction, this research paper's aim is from the theory of planned behavior perspective, to find the impact of entrepreneurship education on entrepreneurial intentions; based on socio-demographic factors, personal initiative, creativity, and opportunity recognition.

## 4.1. Discussion

Entrepreneurial intentions are among the most significant elements affecting individual action (Bae et al., 2014). The results of the data analysis display support for demographic variables, and personal initiative influencing entrepreneurial intentions. There was no direct predictive value found from the data analysis for creativity and opportunity recognition on entrepreneurial intention. However, as per the Pearson correlation analysis, they are significantly correlated with each other.

This implies that training these social attributes can be remembered as entrepreneurship courses by utilizing experimental learning mechanisms (Solomon, 2007). The support for age and parents' profession influencing entrepreneurial intentions means that business education may be an equalizer to support entrepreneurial intentions based on gender (Wilson, Kickul, & Marlino, 2007). A previous study has also discovered that parents' education and gender impact the extent to which an individual may take an interest (Emrich, Denmark, & Den Hartog, 2004).

This paper's findings also discovered similarities that bachelor’s students have a higher entrepreneurial intention in the demographic perspective level of education than Master’s degree students. It is indicated that a student's age and time also positively influence entrepreneurial intention. Bachelor’s students are much younger than Masters Students to take a risk and start a new business. Also, bachelor students have more time to learn about entrepreneurship, generate the idea, and apply that knowledge in a real-life to start a new business.

On the other hand, this study also found that students without any other occupation have a higher entrepreneurial intention. It means that when students have a job besides study, they feel safer

than without a job. It can be proposed that they are unwilling to take a risk, and they did not want to go out of their comfort zone—students who do not have any other job besides study show more willingness to start new things.

The acknowledgment of it has driven the increase in entrepreneurship education programs in forming a county's development. The outcome for showing a more willing mentality influencing entrepreneurial intentions means that people with an advanced set of skills are usually involved in entrepreneurship education ( (Johannisson, 1991).

Entrepreneurship education helps people improve their ingenuity that successively influences their entrepreneurial intentions (Bae et al., 2014). Additionally, the previous study has supported the connection between business education and entrepreneurial intentions (Douglas, 2013; Fitzsimmons & Douglas, 2011).

This paper's results also showed links that advanced personal initiative is related to a higher entrepreneurial intention level. It means students who hold the advanced personal initiative (generally refer to a group of behavioral, self-starting, proactive, and persisting) (Frese & Fay, 2001; Frese et al., 1997) mentality more entrepreneurial-oriented. On the other hand, findings have shown that creativity and opportunity recognition do not directly influence entrepreneurial intentions. However, they significantly correlate with personal initiative and should be therefore be encouraged in EE.

Above all, the method of teaching entrepreneurial attitudes is essential to people needing to begin or deal with a business venture (Fayolle, Gailly, & Lassas-Clerc, 2006). Depending on the audience, entrepreneurship education will build people alert to the problems confronting entrepreneurs (Linan, 2004). Entrepreneurship education makes individuals mindful of the apparatuses they will require in a business setting (McMullan & Long, 1987). Those instruments increase visibility regarding business ventures and help ambitious plan entrepreneurs (Katz, 2003).

The following section will also discuss the study's conclusions with practical and theoretical implications for entrepreneurship education.

## 4.2. Conclusions

This paper has talked about the role of entrepreneurship education in enabling entrepreneurial intentions. The function of creativity, personal initiative, opportunity recognition, and socio-demographic factors was examined as far as how those factors influence entrepreneurial intentions. The proof gathered from the survey and outcomes features the significance of entrepreneurship education.

The following section will further discuss theoretical and practical implications.

### 4.2.1. Theoretical Implications

There are still theoretical variations regarding the main components driving entrepreneurial intentions (Bae et al., 2014). This is halfway because of the great literature deliberating education from an entrepreneurship point of view. This paper's benefit for understanding theoretical roles influencing entrepreneurial education is that there are positive connections between demographic factors and personal initiative with entrepreneurial intentions. This paper used the TPB to comprehend the drivers of entrepreneurial intention. This prompts the attestation that theories describing how to teach people about entrepreneurship are pivotal in linking entrepreneurship theory and practices (Martin, McNally, & Kay, 2013).

This study's main discoveries are that Master’s degree students have significantly less entrepreneurial intention than Bachelor’s degree students. Additionally, this study's outcomes showed that students who have a regular job with the study also show less interest in entrepreneurship. The results similarly show that there was a high positive connection between advanced personal initiative and entrepreneurial intention. This prompts business education is a significant part of building an ecosystem associated with future business venture movement.

This study's findings mentioned in this paper exhibit that student behavioral characteristics, like personal initiative character, influence entrepreneurial intention. This correlation between personal initiative and entrepreneurial intention is probably will help improve academic results and preparing programs. Business faculties will focus their business venture training classes on seeing how socio-demographic factors are significant. Students will still learn how to be entrepreneurial regardless of their level of education or personal ingenuity.

The entrepreneurial environments and eco-systems have been radically changing since then, and it makes sense to look for new models and qualities needed more today. This issue represents the theoretical significance of this paper.

### 4.2.2. Practical Implications

This study's outcomes will help college/universities to offer entrepreneurship courses to understand their characteristics and behavior toward the entrepreneurial intention. The positive outcomes of socio-demographic factors and personal initiative on entrepreneurial intention found in this study imply that business mentors and program designers should emphasize these aspects more in planning the courses.

Policymakers' regional and national points of view can also use this study's outcomes to indicate how individual behavior can influence EI. Besides, governments focus on entrepreneurship to extend worldwide competitiveness; it is vital to control socio-demographic and personal initiative. Regional variations inside a nation may also impact the viability of EE programs. As there was backing for demographic factors and personal initiative impacting EI, business administration teachers will plan pre-education and post-education reviews to assess the learning when people study entrepreneurship. Bae et al., (2014) discover that the pre-and post-education EI does not contrast with EE's additional. Though, another research has discovered that pre-education EI may represent a few contrasts in post-education EI (Lima et al., 2015).

Globally entrepreneurship education should be improved to consider socio-demographic and individual character attributes to boost new business ventures' success rates. This may be possible by focusing on learning objectives in business courses and figuring out how to change students' behavior to be more creative and forward-thinking. The significant development in entrepreneurship courses worldwide implies that there are many ways for students to find out about entrepreneurship. This may be assessed in business courses by focusing on the connection between ecological factors and entrepreneurial location. Using this research outcome, globally, business administration teachers can recognize different cultures address or value personal initiative very differently.

## 4.3. Limitations and Recommendation for Future Research

Regardless of this paper's theoretical and practical importance, there are a few limitations of this study. The primary limitation is that the study is school distribution; the majority (80.70%) respondents are from Tallinn University of Technology (TalTech). In terms of entrepreneurial decision-making, it is necessary to increase the sample size from different educational institutions. Furthermore, the second limitation is that the survey respondents are students, limiting the outcomes' generalizability. However, as this study's focal point is EE, finding out students' entrepreneurial direction is vital to planning and executing better programs for aiming entrepreneurs. It would have been desirable to examine pre and post EI students to understand how EE can improve capacity to start a new business. Future research may study in additional detail; however, the EI of students changes in the long term and whether EE will increase or decrease EI. However, this would expand the analysis scope and require longer time and financial resources to implement, mainly if conducted worldwide.

This research focused on EI, which is the vital issue influencing the number of companies started by individuals as prompted by the literature. Despite the benefit of focusing on EI, other variables might influence a new business (Bae et al., 2014). This might cause another exciting way for future analysis is whether or not there is a bias towards the kind of individuals picking EE Elfenbein, Hamilton, & Zenger, 2010). Thus, this paper's consequences should be compared with future studies examining students' motivation to study entrepreneurship courses.

Finally, to develop the model of this study model, further research could find new kinds of variables that influence entrepreneurial intention. It could include looking at individual qualities such as metacognition, environmental awareness, sustainable and ethical thinking.

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# APPENDICES

## Appendix 1: Questionnaire on Personal Initiative (PI)

**Please analyze yourself and evaluate to what extent the statements below describe you:**

**Scale: 1-totally disagree; 2-rather disagree; 3-agree and disagree; 4-rather agree; 5-totally agree;**

| S.L | | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1 | Every problem is a challenge for me that I want to solve immediately. | | | | | |
| 2 | If there is a possibility to be actively involved, I use this possibility immediately | | | | | |
| 3 | I take the initiative immediately, even when others do not. | | | | | |
| 4 | I have been usually a powerful force for constructive change | | | | | |
| 5 | Nothing is more thrilling than seeing my thoughts transform into reality | | | | | |
| 6 | If I see something, I do not like, and I fix it | | | | | |
| 7 | No matter what the odds, if I trust in something, I will make it happen | | | | | |
| 8 | If I trust in an idea, no obstacle will prevent me from making it happen | | | | | |
| 9 | I take the initiative immediately, even when others do not. | | | | | |
| 10 | I am particularly good at realizing ideas. | | | | | |
| 11 | Including and involving others is elementary for me. | | | | | |
| 12 | I find easily people who follow my activities and me. | | | | | |
| 13 | I am very good at generating new ideas. | | | | | |

## Appendix 2: Questionnaire on Creativity (CR)

**Please indicate to what degree you agree with the following statements**

**Scale: 1-totally disagree; 2-rather disagree; 3-neutral; 4-rather agree; 5-totally agree;**

| S.L | | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1 | I trust my creative abilities | | | | | |
| 2 | I have many times proved that I could cope with difficult creative tasks | | | | | |
| 3 | I am good at proposing original solutions to problems | | | | | |

## Appendix 3: Questionnaire on Opportunity Recognition (OR)

**Imagine thinking about starting as an entrepreneur, and you need to find business ideas and opportunities. Please specify the extent to which the following statements describe your acceptance/disagreement with your action.**

**Scale: 1-totally disagree; 2-rather disagree; 3-neutral; 4-rather agree; 5-totally agree;**

| S.L | | **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|---|---|
| 1 | I have regular contacts with others to obtain new information | | | | | |
| 2 | I always keep a lookout for new business opportunities (ideas) when searching for information | | | | | |
| 3 | I read news, magazines, or trade publications regularly to acquire new information. | | | | | |
| 4 | I am always actively observing for new information | | | | | |
| 5 | I follow people and organizations related to my profession in social media. | | | | | |
| 6 | I understand links between seemingly unrelated pieces of information | | | | | |
| 7 | I am good at connecting previously unconnected fields of knowledge | | | | | |
| 8 | I often understand connections between previously unconnected domains of information. | | | | | |
| 9 | I can recognize the untapped opportunities in the market | | | | | |
| 10 | I can differentiate between profitable opportunities and non-profitable chances | | | | | |
| 11 | If I have an opportunity to choose between several opportunities, I can choose the best of them, | | | | | |

## Appendix 4: Frequency Table (Age)

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| **Valid** | 17.000 | 1 | 0.1 | 0.1 | 0.1 |
| | 18.000 | 9 | 1.1 | 1.1 | 1.2 |
| | 19.000 | 70 | 8.5 | 8.5 | 9.7 |
| | 20.000 | 67 | 8.1 | 8.1 | 17.8 |
| | 21.000 | 60 | 7.3 | 7.3 | 25.1 |
| | 22.000 | 81 | 9.8 | 9.8 | 35.0 |
| | 23.000 | 79 | 9.6 | 9.6 | 44.5 |
| | 24.000 | 63 | 7.6 | 7.6 | 52.2 |
| | 25.000 | 47 | 5.7 | 5.7 | 57.9 |
| | 26.000 | 41 | 5.0 | 5.0 | 62.9 |
| | 27.000 | 40 | 4.9 | 4.9 | 67.7 |
| | 28.000 | 37 | 4.5 | 4.5 | 72.2 |
| | 29.000 | 21 | 2.5 | 2.5 | 74.8 |
| | 30.000 | 33 | 4.0 | 4.0 | 78.8 |
| | 31.000 | 20 | 2.4 | 2.4 | 81.2 |
| | 32.000 | 19 | 2.3 | 2.3 | 83.5 |
| | 33.000 | 19 | 2.3 | 2.3 | 85.8 |
| | 34.000 | 14 | 1.7 | 1.7 | 87.5 |
| | 35.000 | 20 | 2.4 | 2.4 | 89.9 |
| | 36.000 | 7 | 0.8 | 0.8 | 90.8 |
| | 37.000 | 13 | 1.6 | 1.6 | 92.4 |
| | 38.000 | 6 | 0.7 | 0.7 | 93.1 |
| | 39.000 | 11 | 1.3 | 1.3 | 94.4 |
| | 40.000 | 5 | 0.6 | 0.6 | 95.0 |
| | 41.000 | 3 | 0.4 | 0.4 | 95.4 |
| | 42.000 | 10 | 1.2 | 1.2 | 96.6 |
| | 43.000 | 7 | 0.8 | 0.8 | 97.5 |
| | 44.000 | 3 | 0.4 | 0.4 | 97.8 |
| | 45.000 | 1 | 0.1 | 0.1 | 97.9 |
| | 46.000 | 2 | 0.2 | 0.2 | 98.2 |
| | 47.000 | 5 | 0.6 | 0.6 | 98.8 |
| | 48.000 | 1 | 0.1 | 0.1 | 98.9 |
| | 49.000 | 4 | 0.5 | 0.5 | 99.4 |
| | 50.000 | 1 | 0.1 | 0.1 | 99.5 |
| | 53.000 | 1 | 0.1 | 0.1 | 99.6 |
| | 54.000 | 1 | 0.1 | 0.1 | 99.8 |
| | 56.000 | 1 | 0.1 | 0.1 | 99.9 |
| | 57.000 | 1 | 0.1 | 0.1 | 100.0 |
| | Total | 824 | 100.0 | 100.0 | |

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