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Designing a model for entrepreneurial intentions of agricultural students

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ABSTRACT

The authors used Ajzen's theory of planned behavior and Shapero's entrepreneurial event model as well as entrepreneurial cognition theory to identify the relationship among entrepreneurial skills, self-efficacy, attitudes toward entrepreneurship, psychological traits, social norms, perceived desirability, social support, and entrepreneurial intentions. The authors defined the antecedents of entrepreneurial intention in agricultural students. The data were collected from a survey given to students at Iranian Azad University. The survey received 146 effective responses. Based on the findings from the structural equation model, the order of effect of latent variables on entrepreneurial intention was entrepreneurial skill (63%), self-efficacy (44%), attitude toward entrepreneurship (38%), psychological traits (11%), and social norms (0.08%).

KEYWORD

Entrepreneurial intention; perceived desirability; role model; self-efficacy; social norms

Entrepreneurship is a process of creating value by putting together a unique package of resources to exploit an opportunity (Okapara, 2007). Iran is faced with a crisis of unemployment of academic graduates in agricultural majors (Kazemi Mianroodi, 2011). Population growth and a lagging economy are problems facing Iran and other developing countries (Karimi, Chizari, Biemans, & Mulder, 2010). Statistics in 2010 showed that, among the agricultural graduates in Iran, 22% are unemployed and 35% are employed in nonagricultural jobs; this figure is 5% in developed countries (Karimi et al., 2010). In the last 25 years, approximately 50,000 agricultural graduates (including those in natural resource sciences) have been employed in Iran, and 70% are employed in the public sector and 30% are employed in the private sector (Zamani & Azizi, 2006).

Solving the employment problem poses a significant challenge to policymakers in most countries. The stability of some governments depends on the resolution of an unemployment crisis (Barani & Zarafshan, 2010). The Statistical Center of Iran (2011) estimated that 270,000 university graduates enter the labor market every year, but this factor does not reflect market capacity. In 2010, approximately 22% of agricultural and natural resources graduates were job seekers, which was 10% more than the unemployment rate for the entire country (Hosseinpour & Rezaei, 2010).

The latest report from the Central Bank of Iran (2010) showed that the number of graduates in agriculture and

animal husbandry for 2003–2004 to 2008–2009 was 482,308 from public universities and centers and 408,405 from Azad University. Lack of coordination between academic education and the needs of the labor market created problems for graduates and researchers in this area (Hosseini & Shiri, 2010). Unemployment has increased for college graduates, especially those who are in agriculture, and has become a major socioeconomic problem in Iran (Shiri, Savari, & Rostami, 2013). An accurate and coordinated plan is required to address this problem (Zamani & Azizi, 2006).

In recent years, entrepreneurship has shown to be a promising avenue for addressing this issue (Hosseini & Shiri, 2010). Entrepreneurship can provide meaningful opportunities for college graduates to achieve financial and economic independence through innovation and new business opportunities (Ajzen, 1991). Entrepreneurship can increase job creation, human resource development and customer satisfaction, but research has shown that only a small percentage of people become entrepreneurs (Okapara, 2007). Researchers use sociocognitive models and theories to identify a model for entrepreneurship, especially for the employment of youth (Sharma & Madan, 2014). The decision to become an entrepreneur requires the time to create a business, planning, and data processing.

Entrepreneurial behavior is a form of planned behavior that can be assessed using intention models. Entrepreneurial intentions are decision-making factors

that influence entrepreneurial behavior (Soleymani & Zarafshan, 2010). Intention is a prerequisite for entrepreneurship and for specific behaviors after the startup phase (Linan, 2004). The present study is based on two common behavioral models: the theory of planned behavior (TPB; Ajzen, 1991) and Shapero's model of the entrepreneurial event (SEE); these models determine human social behavior. The TPB model was initially proposed by Bird (1988) and further developed by Boyd and Vozikis (1994). The SEE model focuses on entrepreneurship that was developed by Shapero and Sokol (1982).

Barani, Zarafshan, Delangiz, and Lorgani (2010) studied the effect of entrepreneurship education on the entrepreneurial behavior of students at Payame Noor University in Kermanshah, Iran. Their structural equation modeling approach concluded that there is a significant and positive relationship between student entrepreneurial intentions and entrepreneurial attitudes, subjective norms, self-efficacy and entrepreneurial behavior. McStay (2008) concluded that the satisfaction of experiencing entrepreneurial self-employment and self-efficacy are useful for a general understanding of self-employment, especially self-employment intentions. Luthje and Frankie (2003) found that a lack of entrepreneurship education decreases the level of entrepreneurial intention in students and found that attitudes toward entrepreneurship indicate how attractive entrepreneurship is for people. Linan et al. (2011) found that perceived feasibility, personal attitude, planning, alliances and training of employees have positive effects on entrepreneurial intention and that growth is a key feature of success. They stated that reference to be an employee has a negative effect on entrepreneurial intention.

Entrepreneurial intentions have been identified as the first act of a person before undertaking a business or production and initial sales of a business (Rahmanian Kushki, Chizari, & Havasi, 2011). Social psychologists offer robust models of behavioral intentions with considerable predictive value for many behaviors. Such models offer theoretical frameworks that specifically map out the nature of processes underlying intentional behavior. Meta-analyses (Kim & Hunter, 1993) empirically show that intentions successfully predict behavior, and attitudes successfully predict intentions.

Both Ajzen's TPB and Shapero's SEE are largely homologous to one another. Both contain an element conceptually associated with perceived self-efficacy (perceived behavioral control in TPB; perceived feasibility in SEE). TPB's other two attitude measures correspond to SEE's perceived desirability. Yet, one can have great potential for entrepreneurial activity without corresponding intentions. Thus, it would appear that

appropriate attitudes may not be enough. Many business founders had little intention of starting a business only a few years before (Katz, 1992). Then, consider the many nascent entrepreneurs who never launch their intended businesses. To account for the phenomena, SEE adds a volitional element to intentions: the propensity to act. Finally, exploratory research on entrepreneurial intentions identified in dependently much the same antecedent attitudes as these models propose, suggesting further support for the cognitive framework that underlies planned, intentional behavior (Davidsson, 1991). By using the TPB and SEE models as well as the list of variables that were derived from professors and experts in the Agricultural Department of Islamic Azad University Science and Research branch, the latent variables of the present study were determined to be self-efficacy, entrepreneurial skill, attitude toward entrepreneurship, social norms, social support, perceived desirability, psychological traits, and a role model that all of these variables are seen as systematic and holistic.

Literature review

Self-efficacy

Self-efficacy is an individual's personal belief in his or her own ability to achieve a goal (Top, Çolakoglu, & Dilek, 2012). A self-efficacy belief structure was first applied by Bandura (1982) to explain human behavior as the belief in the ability of the individual and was defined to organize and implement operational units to achieve specific goals. One important structure in decision-making based on intention is entrepreneurial self-efficacy. Chen, Greene, and Crick (1998) defined this as assessing an individual's capacity and ability to be prepared for jobs for which he or she feels more ability. Self-efficacy includes belief in individual competence to efficiently complete a task and the belief that a successful campaign results in predetermined conclusions (Rahmanian Kushki et al., 2011). Entrepreneurial self-efficacy is an explanatory variable that determines the strength of entrepreneurial intention and the probability of the intention to carry out entrepreneurial activity, which distinguishes entrepreneurs from other people (Boyd & Vozikis, 1994).

Entrepreneurial skill

Entrepreneurial skill is needed to turn ideas into action (European Commission, 2012). Entrepreneurial skill is the basic skill necessary to enable a person to start, develop, finance and succeed in an enterprise (Adeyemo, 2009). Skills to create new products and services require

the skill to generate a network, professional communication, marketing, and setup of a business. The skill to recognize opportunities, a family entrepreneurial background, and initial knowledge are issues that affect entrepreneurial intentions.

Attitudes toward entrepreneurship

Attitude is a favorable or unfavorable response to an object, person, institution, or event and is considered to be the first determining factor of entrepreneurial intention (Carr & Sequeira, 2007). Entrepreneurial attitude has been defined as personal perceptions toward the value, benefit, and favorability of entrepreneurship that highly affect their intention to step into a new creative venture. In effect, scholars have approached entrepreneurial attitudes in two ways. First, entrepreneurial attitude is an individual's feelings, thoughts, and cognition toward entrepreneurship. The second approach encompasses four key personality factors including the need for achievement, personal control over behavior, innovation, and self-esteem that is known as the Entrepreneurial Attitude Orientation (EAO) scale (Pihie & Bagheri, 2011). This factor affects an individual's perspective about setting up a business. Attitude affects the intention to undertake an entrepreneurial business (Veciana, Aponte, & Urbano, 2005). In this study, based on psychologists' opinions and a literature review, we used four key components of EAO as a latent variable named psychological traits.

Perceived desirability

The perceived desirability of an entrepreneurial endeavor refers to the degree to which an individual is attracted to a given behavior (to become an entrepreneur; Linan et al., 2011).

Social norms

Social norms are individual perceptions about the values, beliefs, and norms defined by the people who are important to an individual and the individual's willingness to comply with those norms (Ridder, 2008). Social norms fall into the context of society and culture. Culture is defined as a set of individual abstract characteristics that make a person part of a group or a specific category. Societies have different cultural values, which can be defined as social values, norms, expectations, and belief systems (religion, language, social relations) that are approved and the willingness of individuals to belong to the group (Hosseini & Shiri, 2010).

Social support

When a social environment (family, relatives, friends, college, and community) supports entrepreneurial activity and encourages people to undertake entrepreneurial activity, students will have a positive perception of entrepreneurship. There will be more social support of entrepreneurs, and a higher and stronger entrepreneurial intention will develop. This increases the possibility that students will intend to create a new business (entrepreneurial behavior; Hosseini & Shiri, 2010).

Psychological traits

Psychological traits in this study include achievement, self-esteem, independence, risk-taking, creativity, and innovation. Robinson et al. (1991) believed that the four important entrepreneurial attitudes are achievement, self-esteem, independence, and creativity. These can be measured using the EAO scale. Each attitude is composed of three dimensions, namely, cognition (beliefs and thoughts), emotions (positive and negative), and behavior (intention and action).

Role models

A role model is an exemplary individual who is known by or in contact with another potential entrepreneur (Grundsten, 2004) and who is seen as playing an important role to follow. Many scholars highlight that role model consist to be among the most important factors that alter entrepreneurial intention.

Based on the argumentation outlined above, the following hypotheses were formulated in the study:

Hypothesis 1 (H1): Self-efficacy has a significant effect on entrepreneurial intention.

H2: Entrepreneurial skill has a significant effect on entrepreneurial intention.

H3: Attitude toward entrepreneurship has a significant effect on entrepreneurial intention.

H4: Perceived desirability has a significant effect on entrepreneurial intention.

H5: Social norms have a significant effect on entrepreneurial intention.

H6: Social support has a significant effect on entrepreneurial intention.

H7: Psychological traits have a significant effect on entrepreneurial intention.

H8: Role models have significant effect on entrepreneurial intention.

The main purpose of this study was to survey influencing factors of entrepreneurial intention in agricultural

students. Based on this purpose, and by developing a comprehensive network, our objectives were to survey and address the influence of the following on entrepreneurial intention: (a) self-efficacy, (b) entrepreneurial skills, (c) attitude toward entrepreneurship, (d) social support, (e) social norms, (f) perceived desirability, (g) psychological traits, and (h) role models. The framework was based on a literature review and opinions of experts and psychologists (Figure 1).

Methodology

The research method used in this study was goal based and used mixed methodology. For the qualitative part of this method, experts' and psychologists' opinions were used. Respondents for qualitative study were six successful agricultural student graduates, from Islamic Azad University Tehran Science and Research Branch, who set up a successful small-scale business. They were

interviewed in depth and the factors that triggered them to be entrepreneurs were used in this study (see Figure 2).

The unemployment rate for agricultural graduates was estimated to be 21%, almost twice that of other graduates, which was calculated to be around 14% (Alibeigi & Zarafshani, 2006). Consequently, job opportunities for most of Iran's agricultural graduates are thought to be limited. Under these conditions students should think about starting their own business. So, the statistical population was all students in the master's and doctoral degree programs in agriculture for the 2011–2012 academic year ($N = 1,830$). A total of 146 students were studied using the stratified sampling method that selected each group proportionally. The main instrument for gathering data was a nine-part questionnaire constructed according to the theoretical framework, hypotheses, and objectives of the research. Internal and external validity of the questionnaire was confirmed by experts.

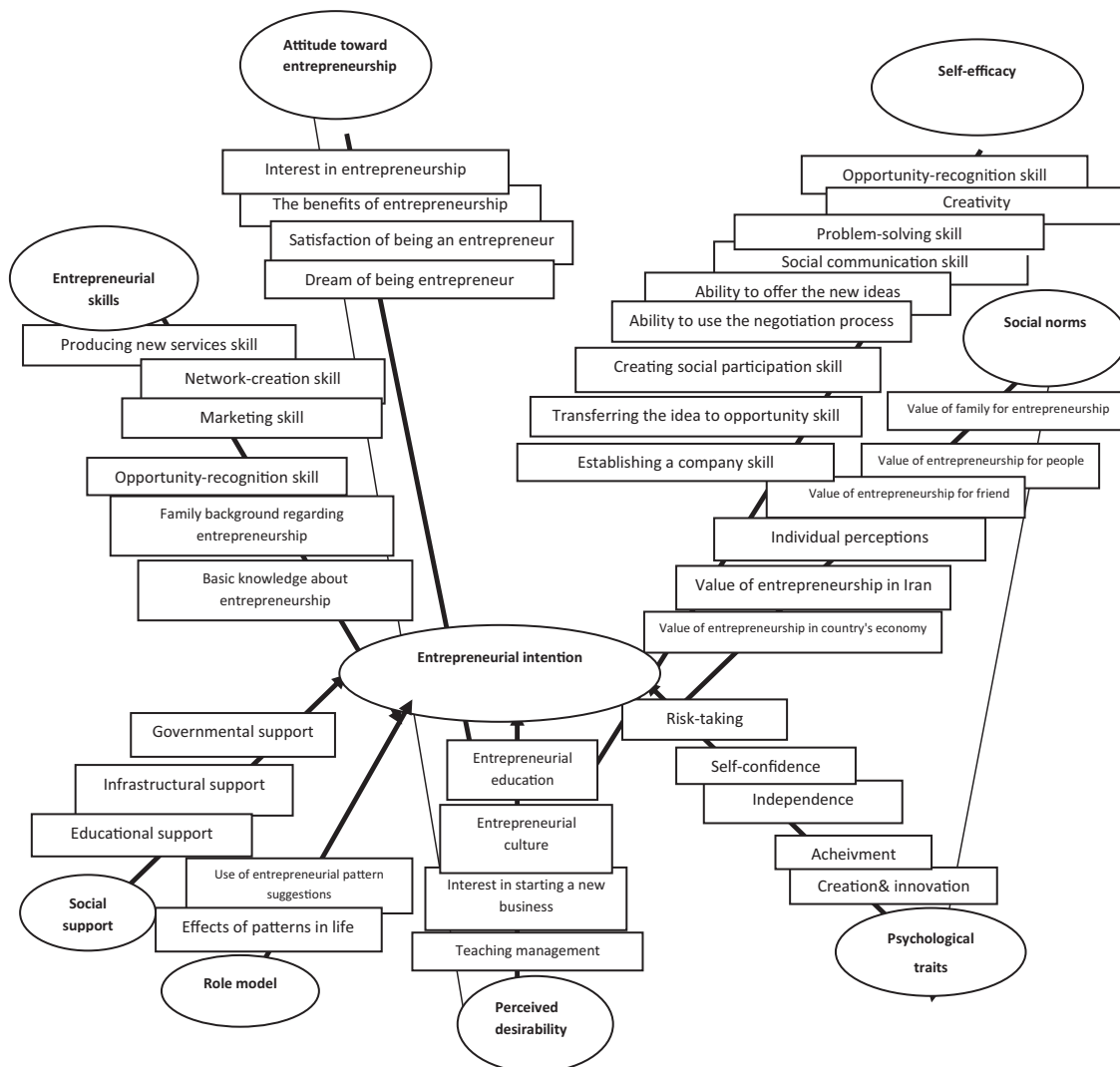


Figure 1. Theoretical research model.

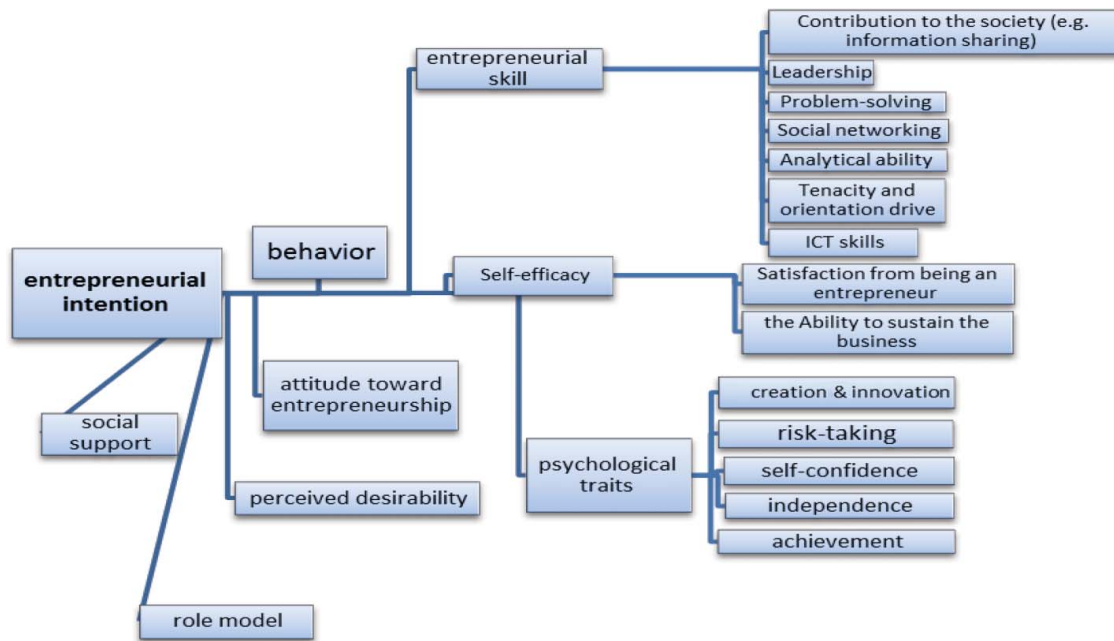


Figure 2. Tree diagram of qualitative study.

Reliability was measured by using Bayesian Cronbach's alpha (max = 95%; min = 78%) as estimated by R codes developed by Najafabadi and Najafabadi (2016).

Findings

The findings showed that 50% of graduate students are 20 to 25 years old (74% women, 26% men).

Expression of the model

Figure 3 shows the structural equation modeling of the study in standardized coefficient estimates. All research variables were categorized as either latent or observed.

Evaluation of model suitability

The model fits a set of observed data when the covariance matrix of the model is equivalent to the observed data covariance matrix. Table 1 shows the appropriateness of research model.

Structural equation modeling

Table 2 shows the relationship between latent variables and the results of the research hypothesis.

As shown, perceived desirability and social support variables had no impact on entrepreneurial intention. The variable of role model had a negative correlation with entrepreneurial intention, which suggests that entrepreneurial intention decreased as the effect of role

model increased. It can be said that increasing the effect of a student's role model for being an entrepreneur decreased the students' entrepreneurial intentions and risk taking.

Results and discussion

The research results showed that entrepreneurial skill has the strongest effect on entrepreneurial intention, which fits the findings of Fairlie (2004), Rajman (2001), and Oosterbeek, Van Praag, and Ijsselstein (2010). One of the reasons for graduates' unemployment seems to be adaptability lack between graduates abilities needed by labor and productive unites (Zamani & Azizi, 2006). Lack of entrepreneurship skills among agricultural students and graduates is another reason for unemployment in developing countries. According to Zamani and Azizi (2006), as a result of poor practical abilities of agricultural graduates, irrelevancy of university subjects, and curricula with labor market needs, it is becoming increasingly difficult for agricultural graduates find jobs or start their own business. The qualitative study revealed that many agricultural students lacked skills in critical thinking, communication, teamwork, and complex problem solving. From students' perspectives increased entrepreneurial skills such as production of new services and goods skills, networking and communication skills, marketing and business skills, recognizing opportunities skills, basic knowledge about entrepreneurship, and dialogue skills have positive effect on

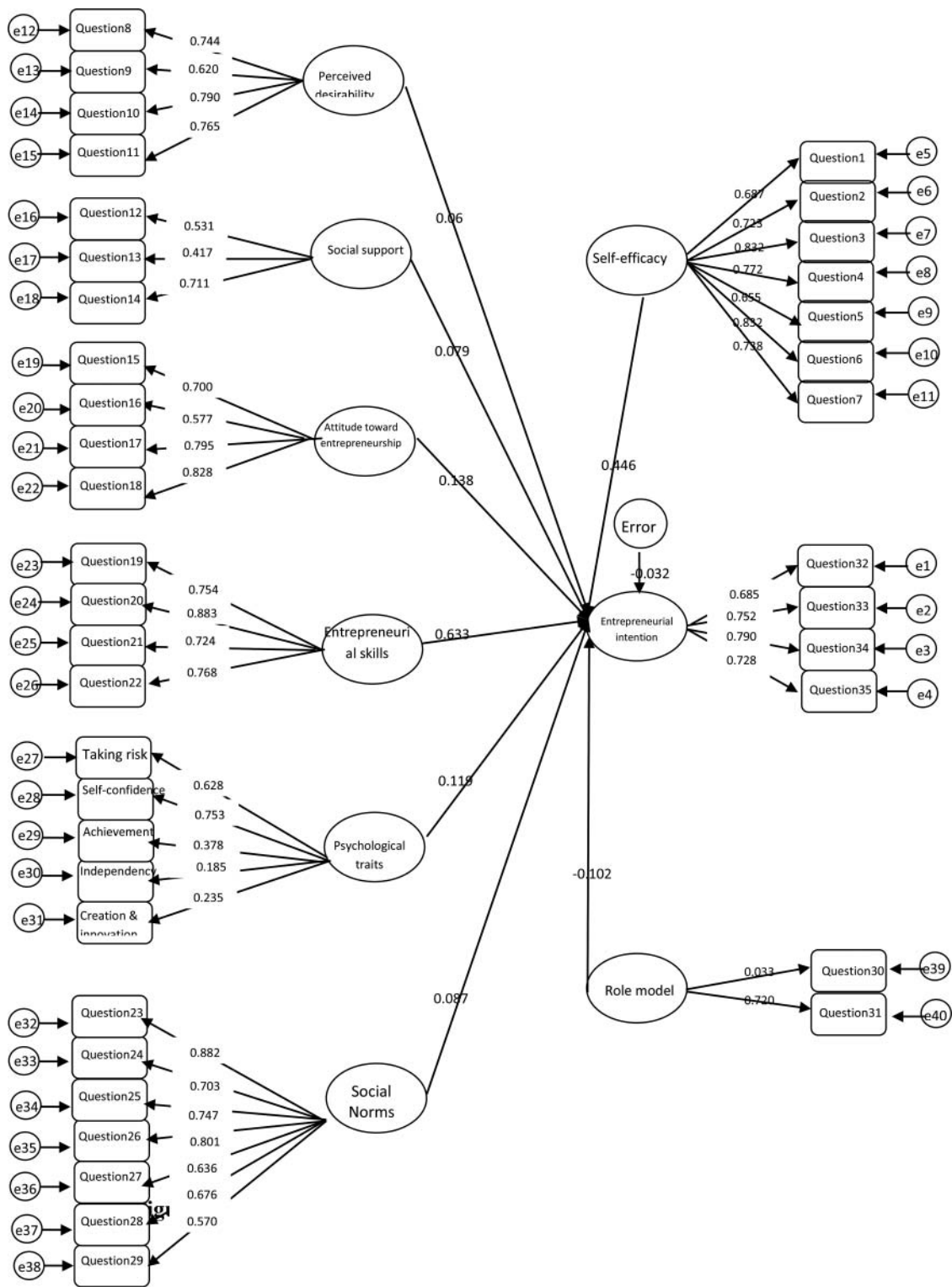


Figure 3. Structural equation model for estimated standard coefficients.

students' entrepreneurial intention. The importance of entrepreneurial skills may be explained from the fact that both entrepreneurial intentions and behaviors can be conceptualized as functions of entrepreneurs' personal abilities. Background and skills accumulated by each entrepreneur are, in fact, predictors of

entrepreneurial activities. In-depth interviews with successful graduated students showed that a high level of managerial skills is a requirement for individuals involved in high-technology firms and procedural skills are fundamental in knowledge-intensive entrepreneurial environments.

Table 1. Model goodness of fit.

Index	Model estimate	Allowed limit
χ^2/df	1.53	>3
RMSEA	0.06	>0.1
CFI	0.931	<0.9
TLI	0.902	<0.9
IFI	0.935	<0.9

Note. CFI = comparative fit index; IFI = incremental fit index; RMSEA = root mean square error of approximation; TLI = Tucker-Lewis index.

Self-efficacy is the second strongest factor influencing entrepreneurial intention; this fits the findings of Linan (2004), Wilson, Kickul, and Marlino (2007) and Zhao, Hills, and Siebert (2005).

The third factor influencing entrepreneurial intention of students is attitude toward entrepreneurship; this fits the findings of Carr and Sequeira (2007), Barani and Zarafshan (2010), and Barani et al. (2010). Qualitative research results also showed that attitude toward entrepreneurship contains three separable components. For more details see Table 3. Item costs means the personal and financial sacrifices one is willing for the sake of the entrepreneurial venture.

The fourth factor influencing entrepreneurial intentions is psychological characteristics such as risk taking, innovation and creativity, self-confidence, independence, and achievement. These are consistent with the findings of Barani et al. (2010). Unlike the common belief that social and governmental support have the greatest effect on entrepreneurial intention, in this study, we found that individual characteristics have the greatest effect on entrepreneurial intention. As we have seen, entrepreneurial skill, self-efficacy and attitude toward entrepreneurship, and psychological traits were the most influential four factors. These factors were all part of the personal characteristics, so it can be concluded that students can use the entrepreneurial education from university to increase their ability to become a good entrepreneur.

The fifth factor influencing entrepreneurial intentions is social norms, which fits the findings of Carr and Sequeira (2007) and Barani et al. (2010). This factor has the least influence on entrepreneurial intention. As a

Table 3. Three components of attitude toward entrepreneurship.

Cognitive	Being an entrepreneur: Implies more advantages than disadvantages to me; evokes mainly positive thoughts; present more up than downsides.
Affective	A career as entrepreneur is (totally) attractive for me; If I had the opportunity and resources, I would love to start a firm; Being an entrepreneur would entail great satisfactions for me.
Costs	I would rather own my own business than: Earn a higher salary employed by someone else; pursue another promising career; I am willing to make significant personal sacrifices in order to stay in business.

Source: Qualitative research.

result, the social element has little effect on entrepreneurial intention of students. Social norms are placed in framework of culture; also a dominant culture of society affects entrepreneurship. In the communities where the entrepreneurship has social legitimacy, there is greater attention to entrepreneurship in the education system and it is considered a desirable issue in society.

Role models had a negative effect on entrepreneurial intention; this means that the influence of a role model on entrepreneurship in a student's life had a negative effect on that student's entrepreneurial intention. These findings are not consistent with the results of Pittaway and Cope (2007) and Veciana et al. (2005). Students might think if they talk about start up a business with someone who is a successful model for them, that person may have deterred them from doing this action and not only dose not an incentive for them, but also because the lack of sufficient experience considered it as a pointless matter. And therefore, this decreases the power of taking a risk and students' self-confidence, which are the major factors of an entrepreneur.

Suggestions

Researchers have suggested that an individual's entrepreneurial intention, imagination, and perception of him- or herself and the environment should be studied instead of a real environment because it is expected that a person's imagination has more effect on his or her entrepreneurial intention than does reality. The results show that entrepreneurial skill had the strongest

Table 2. Path coefficients, *t* statistics, probability, and results of hypothesis.

Research hypothesis	Path coefficient	<i>t</i> (<i>df</i> = 13)	<i>p</i>	Result
Self-efficacy→entrepreneurial intention	0.446	6.19	< .001	Confirmed
Perceived desirability→ entrepreneurial intention	0.06	0.163	.870	Not confirmed
Social support→ entrepreneurial intention	0.079	1.957	.050	Not confirmed
Attitude toward entrepreneurship→ entrepreneurial intention	0.138	3.53	< .001	Confirmed
Entrepreneurial skills→entrepreneurial intention	0.633	8.84	< .001	Confirmed
Psychological characteristics→entrepreneurial intention	0.119	2.319	.020	Confirmed
Social norms→ entrepreneurial intention	0.087	2.024	.043	Confirmed
Role model→entrepreneurial intention	-0.102	-2.37	.018	Confirmed

effect on entrepreneurial intention. The following entrepreneurial skills are suggested for development of entrepreneurship: Assessment of student abilities and skills needed for entrepreneurship and self-employment according to the requirements of each discipline; developing the content required for knowledge, insight, and skills; using problem-solving methods and critical and creative thinking skills.

Belief in self-efficacy was the second most influential variable on entrepreneurial intentions. To increase belief in self-efficacy, the following suggestions are proposed: educational proficiency; emphasis on practical courses, especially completing training courses; psychological characteristics and social norms influential to entrepreneurial intentions; visitation to successful entrepreneurial projects in agriculture; invitation of entrepreneurs to share their experiences for business; establishing and strengthening the entrepreneurial characteristics that will lead to the entrepreneurial behavior development in students using influential factors (risk-taking, self-confidence, achievement, independence, creativity, and innovation); and removal of governmental and legal obstacles to creating and launching entrepreneurial businesses to encourage graduates.

Limitations

One limitation of this study is the use of students as part of a sample from only one academic institution, which limited the impact of the findings somewhat. The other limitation was the use of only self-report measures. Although some of the constructs are conceptualized as self-reports (e.g., entrepreneurial self-efficacy), a second source of data would be particularly useful for other variables. Alumni could be surveyed in future research.

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