

The Relationship between Thinking Styles and Entrepreneurship Characteristics of Faculty Members in the Distance Education System

Reza Norouzzadeh¹, Byram Aghapour^{*2}

1. Associate Professor of Observation and Evaluation Center, Ministry of Science, Research and Technology

2. Instructor and faculty member of Department of Educational Sciences, Payame Noor University

Received: 2017/11/09

Accepted: 2018/01/06

Abstract

Faculty members are of the main components of the higher education system and universities with a significant role in educating entrepreneurs. The purpose of this study was to examine the relationship between thinking styles and entrepreneurship characteristics of faculty members of distance learning. The study was descriptive-correlational considering the method and applied in terms of purpose. The population was all faculty members (contractors, covenants, formal and adjunct professors) of distant learning universities in West Azarbaijan, teaching at the university in the first semester of 2012-2013, who were 2000 people. From among the population, 270 subjects were selected as the sample by cluster sampling. The data was collected using two standard questionnaires. One questionnaire was related to thinking styles with Cronbach's alpha of 0.87 and the other one was related to entrepreneurship characteristics with Cronbach's alpha of 0.89. Data were analyzed using SPSS, Pearson correlation, and multivariate regression analysis. The results suggested that pragmatic thinking positively and realistic thinking negatively are related to entrepreneurial characteristics, and other thinking styles have no significant relationship with entrepreneurial characteristics. Moreover, the findings showed that realism and pragmatism have a larger share in explaining the entrepreneurial characteristics of faculty members in the distance education system. Accordingly, it is suggested that the thinking styles of the faculty members be considered while recruiting them.

Keywords

Entrepreneurial Characteristics, Thinking Styles, Faculty Members in Distance Education, Distance Education.

Introduction

The quality of higher education is a concern of most countries. This gets special significance given the infrastructure role of higher education, such as Payam-e Noor University, in nurturing experts and experienced people in the society. On the other hand, Higher Education is one of the effective elements in boosting quality and the capability of faculty members as they not only have are responsible for helping students build knowledge, but also create insights and skills training in the framework of the goals of the higher education system. This is important because of changes in higher education in the first half of the twenty-first century. These changes include the transformation of the periphery of higher education and the necessity of its coherence with the industry and profession market and the widespread use of information technology. In this sphere, higher education institutions face demand, customer orientation, interaction with society, and adaptation to changing needs and emerging expectations. Thus, professional continuous planning and development of faculty members, as part of the management of human resources at the university level, has a special status in the management of universities [Zahedi and Bazargan, 2013].

Among the variables closely related to entrepreneurship are thinking styles. Thinking styles can be the reason behind different behaviors. If we hope for the progress of individuals, we must consider their thinking styles.

One of the major differences between creative and entrepreneurial people with others is in the way of using thought. Thought means moving from known to unknown, so it can be moved in different ways and modes. In so many cases, creative and entrepreneurial people use different intellectual styles unwittingly. However, if they become conscious and informed and educated about their styles and differences, they can be much better and more efficient than before [Golshkoh et al, 2009].

Thinking styles are not abilities but preferences for using abilities. Nonetheless, selecting the proper intellectual styles for a subject is a skill and ability. Intellectual styles help us to understand why some people are successful in their jobs and some are unsuccessful. In selecting their jobs, individuals should not only focus on their abilities, but also adapt their thinking style to the desired job (Samadaghaei, 2004).

Consistency between thinking styles and capabilities creates an incremental force much larger than the sum of its components, so those who are thought to be incapable of doing anything may not be in fact incapable but their thinking styles or those who evaluate with might not be in line. Goodness or badness of thinking style is relative. They are different in different times, places and situations. People are flexible in presenting thinking styles, and variables such as culture, gender, age, parents and teachers' thinking styles are effective in changing thinking styles [Puor Abedi, 2004].

An important factor with a role in the entrepreneurship of students is the university professors that can play a role in the training of entrepreneurial students. This (training entrepreneurship students) can be important in distance education system, where a large student graduate every year and look for a job because if the distance education system can educate entrepreneurship graduates, it takes an important step in employment of the graduates. The professors of the distance education system can play an important role here.

The professors can help the entrepreneurship training process in the higher education system when they themselves have a thinking style connected entrepreneurship. A study has stated the most important factor in entrepreneurship of the individual as entrepreneur personality. This means how much he believes himself and his job, or when failures come one after the other, how he remains determined to go forward in the future and how the entrepreneur is determined to change the threats to job opportunities [Ghasemi, and Assadi ,2010]. Many studies have been conducted on individual characteristics of entrepreneurs, some of which have referred to characteristics like the need for improvement, internal control and risk taking [Ahmdpuor 2010], creativity, innovation, tolerance of ambiguity, need for independence, future orientation, internal control, attitudes towards economic well-being, positive attitudes, need for success, and self-esteem.

Theoretical basics and literature

Entrepreneurship is a new term, whose real sense cannot be understood just by its meaning. The term “entrepreneurship” is used to mean assume originally derived from the French word “Entreprender” meaning uniting. Connaughton [Ali Miri, 2008] used this term first for entrepreneurship [Hezarjaribi, ebrahimi, 2004] [Samadaghaei, 2010].

According to Webster's New Collegiate Dictionary, entrepreneur is the one who is committed to organize, manage and accept the risks of an economic activity [Seljuki, 2009]. Entrepreneur in French was first referred to as a music group or other activity organized entertainment. Then in the early sixteenth century, the term was used for those who were sent to military missions. Gradually, the word found more use in the seventeenth century and included engineering activities such as construction and land management. From the onset of the eighteenth century, the term was used for economic activities. In this mold, the concept of entrepreneurship has gone through evolution for more than four centuries, and from that time on, the term entrepreneurship was used for various activities in different perspectives [Ahmdpur.d adn Moghimi, 2006]. In fact, an entrepreneur is someone who has a particular innovation. This innovation can be in the form of a new product, the provision of a new service, designing a new process or innovation in customer satisfaction, and so on.

Nowadays, new concepts such as "Entrepreneurial University" are discussed in higher education literature. An Entrepreneurial University is the one successful not only in meeting its diverse needs and expectations, but its operational programs and processes have been refined and reviewed to promote the culture of entrepreneurship and education [Chambers, 2002]. The role of the university is important if the status of education is discussed in the entrepreneur and its development. Akbari argues that, despite the fact that some experts believe that entrepreneurship is not achieved through direct education; entrepreneurs should be educated in the educational process. However, nobody denies that the use of new technologies and the creation of new businesses without education and research are inaccessible in practice. By referring to the information available on increasing university courses, the importance of entrepreneurship in developed and developing countries educational and research systems in developing entrepreneurship development and entrepreneurship education is further identified. In other words, there is a direct link between technology advancement and the need for entrepreneur training [Akbari, 2007].

The relationship between university and entrepreneurship is an interactive one. The importance of the role of entrepreneurship in universities is increasing repeatedly. Clark argues that dynamic universities are the entrepreneur ones in the third millennium [Hosseini Lorgany, et al, 2008]. Universities must have entrepreneurship and to create entrepreneurship, they must first pave the ground for it.

In examining the hurdles to entrepreneurship development, Mirza Mohammad and his colleagues concluded that endogenous barriers have the inhibition role in entrepreneurship development in universities, so they are exogenous barriers and are in third place in terms of barriers. Here, the role of senior management is the most important barrier to entrepreneurship in the university; next, one is the role of complexity of goals, and ultimately the role of human resources as the main hurdles to entrepreneurship in the university [Mirza Mohammad, et al 2008].

Different factors like the atmosphere of a higher education system [Sadeghi-Shahmirzadi, and adli, 2010], the role of education [Rasheed, 2000], organizational structure [Alimardani et al, 2009], and student characteristics [Rezaei, and Rahsepar, 2009] are among the other effective factors in educating entrepreneurs at universities. Creating entrepreneurship thinking, applied training and opportunity introduction [Malki-aleagha, 2007], organizing interdisciplinary curriculum, problem-setting, creating experience opportunities in real learning environments and real evaluation [kossary and Norouzzadeh, 2010] can also be added to this list. In addition to these cases, social values can also be effective in the growth of entrepreneurship. Social values are in fact unwritten rules that guide the mechanisms of the group [Meek, et al, 2010].

Faculty members of universities have a critical role in entrepreneurship education able to nurture entrepreneurship graduates. Academic education can play an effective role in this regard, too. Farhang

and Agha Mohammadi stated that university education drastically affect the entrepreneurial capabilities of the individuals in terms of independence, inner control, the motivation for progress and creativity. Nonetheless, the professors can help the process of training entrepreneurs in higher education systems if they have entrepreneurial characteristics (Farhang, Agha Mohammadi, 2007). Ghasemi, and Assadi have stated the most important factors in entrepreneurship as the entrepreneurship individual's characteristics. This means how much he believes himself and his job, or when failures come one after the other, how he remains determined to go forward in the future and how the entrepreneur is determined to change the threats to job opportunities Ghasemi, and Assadi (2010). Entrepreneurs are different in many individual characteristics with other people [Fairlie and Holleran, 2012]. Forbes, for example states that they have higher levels of self-confidence than others do. Features such as risk taking, entrepreneurial skills, an inclination to independence, being control center to predict who can start and run a new business are used often [Caliendo et al., 2010] [Zhao & Seibert, 2006]. Thus, for universities to hire such faculty members, they must have the authority to identify the characteristics of entrepreneurs, and to consider the staffing and recruitment of faculty members. However, as the role of the university professors is unknown, it seems to be hidden from the scholars of this field: an important factor that can play in entrepreneurship. These, (entrepreneurship education) in universities faced with a huge number of students and their graduate each year look for jobs, can be important that if the university educates its entrepreneurship, it is important to take an important step in the employment of graduates. Universities can play an important role in this. The main issue here is what factors play a role in the entrepreneurship of the professors?

Many studies have been conducted to answer this question, with different answers given. Individual characteristics can have an effect on entrepreneurship; they are not consistently confirmed in the research results, though. Considering gender effect on entrepreneurial personality traits, Faiez states that girl and boy students are not significantly different in terms of personality characteristics such as balanced risk taking, being center of control, success appetite, intellectuality, tolerance of ambiguity and challenging, but they are different in terms of personality traits of pragmatism and dreaming [Faiez, 2009]. Rezaei, and Rahsepar found that although the mean of female and male students showed differences in the entrepreneurship areas of the need for success and independence, but there was no significant differences between the components of internal control, creativity and susceptibility of risk taking (Rezaei, and Rahsepar, 2009). Moreover, Agha-Jani, and Ganjehkor indicated that psychological features such as autonomy in work, creativity and innovation, risk taking, will and perseverance, internal control, and the mentality of learning are among the factors affecting entrepreneurship (Agha-Jani, and Ganjehkor, 2010). [Zali et al 2007]

Furthermore, the results of Mirmohammad Rezaeei and Gholipour showed that the entrepreneurship morale of trainees who have gone through the entrepreneurship courses, in comparison with those who did not, in dimensions (success, need for independence, creativity, ambiguity, center Control, risk aversion) is higher. Thus, the positive role of entrepreneurship education can be considered significant in increasing the entrepreneurial spirit and, consequently, the employment generation of young people and the reduction of unemployment [Mirmohammadrezaeei and Gholipour, 2016].

The role of education in entrepreneurship has also been considered in different studies. The underlying question of the researchers' concerns was whether people are born entrepreneurs, or they became entrepreneurs through education. This makes the importance of education more visible. About education, Wesper believes that entrepreneurs whose probability of failure is greater are those who have experience but not education. The second group of entrepreneurs whose probability of failure is more than the first is those who have been trained but have no experience. On the contrary, those entrepreneurs trained as experienced do lead the most prestigious activities [Akbari, 2007]. Coupled

with higher education levels of the society, the level of education of entrepreneurs has been improved. However, in the latest studies conducted by Cox and Coper, it has been shown that 68% of successful managers have bachelor's degrees, whereas only 21% of successful entrepreneurs have university degrees [Navabakhsh, 2010]. Although university education is not a prerequisite for success, it appears that university education and management education should be improved to increase the size of corporate and family firms [Akbari, 2007]. Graevenitz et al. found that conducting entrepreneurial courses could help identify individuals from their entrepreneurial talents and increase their tendency towards starting a new business. To nurture entrepreneurship, one should begin to grow and improve levels of higher education in a specialized ways [Kossary and Norouzzadeh, 2010].

Considering age, some studies have conducted on entrepreneurs. As an entrepreneurial activity needs sufficient financial support for a series of factors, such as high energy, sufficient financial support, we see that the average age of entrepreneurs has been over 20 years of age. The studies show that 88% of entrepreneurs between the ages of 20 and 50 began their activity, of whom 65% were between the ages of 20 and 40 [Shah-Hosseini, 2007]. Frydman et al. stated that people between the ages of 25 and 40 had the highest levels of entrepreneurial characteristics.

Ezadi et al. showed that the business environment, the use of knowledge management, previous experience, the existence of personality traits, such as creativity and the availability of an internal control center, government support, and management skills all have an impact on entrepreneurship development in home-based businesses [Ezadi, et al 2016].

One of these components is the teacher's personality, the attitudes, values, and norms of the teacher. Studies conducted have suggested that individual values of entrepreneurs are important [Giannetti, Simonov, 2004]. However, these studies have failed to display the distinction between entrepreneurs and executives, unsuccessful entrepreneurs and even the lay people. For instance, entrepreneurs tend to be a productive leader, which does not distinguish them from successful managers. Individual value scales in management, along with scales of support, fervor, goodwill, adaptability, entrepreneurs recognize creativity, honesty, and honesty, but they are used to identify successful individuals. Some studies have shown that in general, entrepreneurs have a set of different perspectives on the nature of the management process and business activities. The nature of fervor, opportunism, founding, and personality of an entrepreneur varies widely based on bureaucratic organizations and the capabilities for designing rationality and the prediction of its managers. As the values of individuals are effective in their activities, this effect on the characteristics of entrepreneurship can be taken into consideration.

Thinking style

Based on mental self-government theory, Sternberg suggests thirteen styles of thinking. The basic idea in Einen's theory that the various types of existing world-wide governments are not just accidental but external reflections of the kind that people have in their minds. Thus, governments are the open mirrors of people's mind [Strenberg, 1997].

Sternberg believes people, such as cities, need control. Governments also have different aspects like function, shape, level, scope and direction. Three core functions of governments are legislative, executive, and judicial. The four forms of government are monarchy, hierarchy, minority rule and chaos. The basic levels of government are the general and small-scale levels of government. There are two dominant domains of internal and external governance and two-state rule, conservative and free.

According to mental self-government theory, there are 13 theses of the above-mentioned theories, respectively [Kaviani, 2005].

Concerning thinking styles, a wide range of studies has been conducted in various fields. In a study on American university students, Zhang found a positive outlook on student scores (Zhang, 2001). Similarly, Zanck (2001) Wazanak and Wasserenberg (1998) conducted the study on Hong Kong students, and found that interactive, executive, hierarchical, and interpersonal thinking styles are positively related to academic progress and, consequently, the motivation for progress. In addition, the legal and liberal thinking style has a negative tendency towards academic achievement. On the other hand, results of the studies in Spain have confirmed the results obtained in Hong Kong [Kadivar, et al, 2010].

In another study, Qing and Wuhan (2004) showed a relationship between creativity and critical thinking and thinking styles. Emamipour and Seif (2003) showed a relationship between thinking and creativity styles, with free style of thinking associated with increasing creativity and conservative thinking style with decreasing creativity. Moreover, free and hierarchical styles of thinking and predictive of the high level of academic achievement in students and the style of thinking and oligarchy style of thinking is predictive of low academic achievement. Furthermore, in another research by Rissal (1992) in Indonesia, it was shown that among the effective traits of selecting a job and entrepreneur, creativity and innovation are important. In line with these, Moharer (1982) showed that the most important feature of entrepreneurship in addition to self-confidence is creativity, and motivation for progress [Moharer, et al, 2012].

In their study on the thinking styles of senior IT managers and IT executives in America, Denilson and DeLacice (2001) concluded that low-level managers have an analytical thinking style. However, top-level managers have a holistic-thinking style i.e. they are idealist and pragmatist that distinguished by the overall picture and the flexibility of the complexity of focusing on resourceful and beneficial initiatives and innovations [Hashemi, et al, 2011].

Harrison and Bramson divided the thinking styles into five categories: Synthesit (skeptical people who emphasized basic ideas and abstract ideas), analyst (apparently cool, hardworking, possibly cold, and hardly predictable) realist (decisive and quick in their everyday work and tend to be honest, strong and upright, but not necessarily aggressive). Moreover, they include idealist (influenced by high goals and criteria with a valuable attitude to issues and human beings) and pragmatist (with good humor who agree quickly with the thoughts of others, but unlike the idealists are good with differences, yet not welcome it such as synthesit) [Hashemi, and et al, 2011].

Golshkoh et al. conducted a study to compare the relationship between thinking styles motivation for advancement, academic achievement and creativity with entrepreneurship among the students of Islamic Azad University of Andimeshk. The results showed a significant relationship between thinking styles (performance, shapes, domains, tendencies, levels) and entrepreneurship [Golshkoh, et al, 2009].

Results of Razavi & Shiri, regarding the comparative study of the relationship between girls and boys of high school educational styles and their educational progress, suggested that the relationship between students' thinking styles with academic and educational progress is not significant. However, it had a significant relationship with age. Teachers' style is more than the style of the thinking style of the child [Razavi and Shiri, 2005].

In general, students had a liberal attitude with more achievement that is more academic. This conclusion was true for the male, but not for the girl students.

The results of Shokri et al., with the aim of studying the relationship between thinking styles and learning approaches with academic progression of students, showed that differences in academic progression, legal, judicial, hierarchical, internal, external, and upper level had significant differences. Moreover, the intellectual, judicial, external hierarchy had a positive relationship with deep learning with academic progress. Semitic, partial, conservative, superficial learning style had a significant negative relationship with academic achievement [Shokri, et al (2004)].

In a study, entitled “The relationship between the thinking styles of Islamic Azad University professors and their levels and domain,” Arabi found a relationship between the legislator, the executive and the judgmental styles of female and male teachers with a holistic view, but there is no difference between the thinking of female and male professors [Arabi , 2001].

The research by Haghghat Joe et al. showed a significant relationship between types of entrepreneurial thinking with only one aspect of the legislature's thinking with entrepreneurship. About 23% of the variance of entrepreneurship scores stems from the variance of legislative style styles [Haghghat Joe et al (2009)].

As the consistency between thinking styles of the people to their jobs leads to their success in their work, it is best to present the tasks assigned to the people in a way that they adapt to their thinking styles or to adapt their thinking style to those tasks. Thinking styles help find out the extent to which individuals are successful or unsuccessful and help each person better understand why some activities are appropriate for him or not. Individuals like to react to their thinking styles and to use their potential, so they respond differently according to their thinking. Thus, if an individual is not successful in managing the organization or the organization under his management does not have a high degree of success, it may be due to a style of thinking different from the type of his job, and the tasks assigned to him are not adapted to his style of thinking. Thus, knowing the thinking styles seems important.

As is seen, a person's thinking style can play a fundamental role in the success of individuals affecting their performance. Adapting the type of work and occupation of people with their thinking styles to their effectiveness given the above, the training of entrepreneurs is a sensitive activity, and university professors play a significant role in this. Today, we are witnessing the development of a remote-education system. This growth is in the light of increasing Internet growth, growth in personal computers and multimedia. The impact of online learning is significant due to the increasing educational and networking skills. In addition to the growth of Internet and computer technology and technology in expanding distance education systems, continuous learning and part-time training for learners have made the number of people in this systems increase. Increase in the number of learners at Payam-e Noor University and the concomitant increase in the faculty (contract, treaty, and formal) to about 4000 students and adjunct teachers (forming a large part of the faculty members of this university) have made the necessity of studying the relationship between the characteristics of entrepreneurship of the faculty and their thinking style twofold. The study was conducted to examine the relationship between thinking styles and entrepreneurship characteristics of faculty members of the distance education system (Payam-e Noor University).

Hypotheses and research questions:

Regarding the research question, five hypotheses and one question are presented below.

There is a relationship between synthesit thinking style with the entrepreneurial characteristics of the faculty members of the distance education system.

There is a relationship between idealist thinking style and the entrepreneurial characteristics of the faculty members of the distance education system.

There is a relationship between the thinking style of pragmatism and the entrepreneurial characteristics of the faculty members of the distance education system.

There is a relationship between analyst thinking style and the entrepreneurial characteristics of the faculty members of the distance education system.

There is a relationship between realism thinking style and the entrepreneurial characteristics of the faculty members of the distance education system.

How is the predictive model of entrepreneurial characteristics from thinking styles?

Methods

This study was conducted to examine the relationship between thinking styles and entrepreneurial characteristics of faculty members in the distant educational system of West Azerbaijan, applied and descriptive of correlation design regarding method.

The population of the study was all professors of faculty members (contractual, treaty, and formal) and adjunct teacher of Distance Education of West Azerbaijan University in the first semester of 2012-2013. Cluster sampling was used to select the sample. Thus, firstly, four centers and three departments were randomly selected from among the centers and departments. As the number of population was about 2000 faculty members or adjunct teachers, 320 were selected randomly from selected centers and departments. Then the questionnaires were sent and 270 subjects completed the questionnaires.

Entrepreneurship characteristics and thinking styles questionnaires were used to collect data. The entrepreneurship characteristics questionnaire had 60 questions based on Likert scale. The questionnaire was standard developed by the International Center for Entrepreneurship at Darhem University standardized by Daryani (1998). The overall reliability of the whole questionnaire was investigated using Cronbach's alpha, which was 0.89.

The second questionnaire designed in 2002 by the Grison and Brahmson was thinking style. This questionnaire evaluates five thinking styles: synthesit, idealism, pragmatism, analyst, and realism. The questionnaire was a collection of 18 questions in descriptive form with five options, where after each question there is a probable answer. The first one is based on one of the styles of thinking and the other according to their preferences; they rank from 1 to 5. In the query, responses are distributed randomly so that it is not clear to the respondents which option is the type of thinking. The result of the questionnaire is five scores, each of which is related to one of the thinking styles. The score of each thinking style is obtained from 18 scores related to that style varying from minimum (1×18) 18 to maximum of 90 (5×18). The score of each individual in his thinking style reflects his preference for using that style. SPSS software was used to analyze the data. The decision to reject or confirm the hypotheses was at a significance level of 5% ($\alpha:05$) at a confidence of 95%

Data analysis

Prior to presenting the analysis of the hypothesis and research questions, it is necessary to provide information about the research variables and relevant statistical indicators, such as the mean, standard deviation, shown in Table 1.

Table 1. Statistical indices of the variables

Variables	Mean	SD	Minimum	Maximum	The number of subjects
-----------	------	----	---------	---------	------------------------

Entrepreneurial features	183	17	136	227	270
Synthesit	53	7	31	66	270
Idealism	53	5	39	69	270
Pragmatism	55	5	39	71	270
Analystl	53	5	42	71	270
Realism	56	7	43	72	270

The data of the mean in Table 1 show that realism and pragmatism styles are the two leading styles among sample individuals, and then are the synthesit styles, analytic, and idealism. As both variables are in interval scale, Pearson correlation coefficient test was used with the results presented in Table 2.

Table 2. Correlation coefficient between thinking styles and entrepreneurial characteristics

Variables	Correlation coefficient between thinking styles and entrepreneurial characteristics	Sig.	Sample
Synthesit	-0.030	0.629	270
Idealism	-0.027	0.659	270
Pragmatism	0.22	0.01	270
Analystl	0.095	0.120	270
Realism	-0.218	0.01	270

Given the significance level in Table 2, pragmatism thinking style is positively correlated to realism and realism is negatively correlated to entrepreneurial characteristics, and other styles have no significant relationship with entrepreneurial characteristics. Thus, the third and fifth hypotheses are confirmed.

Nevertheless, analyzing the data for the main question of the research, i.e. the prediction model of entrepreneurial characteristics from the thinking styles, is used to respond to it by multivariate regression. In the proposed model, predictor variables were five thinking styles and entrepreneurial characteristics, as criterion variables (dependent), are entered into the regression model. Table (3) shows the model summary.

Table 3: The summary of the model used

Model	R	R square	Squared standard R	Estimation error
1	0.3	0.30	0.10	16

As is seen in Table 3, the coefficient correlation coefficient is 0.30. This shows that 0.30 of the dispersion observed in entrepreneurial characteristics is explained by thinking styles. Correlation coefficient also shows that the linear regression model can be used to some extent to explain the relative contribution. In addition, considering standardized correlation coefficient (0.10), one can state that the selected model considers 10% of variance of criterion variable (entrepreneurial characteristics).

Table 4: Analysis of variance (ANOVA)

Changes	Total Squares	Degree of freedom	Mean squares	F	Sig.
Regression	7113	5	1423		0.01
Remnant	71107	264	269	5.28	
Total	78220	269			

The data in Table 4 show that the obtained F ratio (5.28) is significant at the level of 1% error. Thus, one can be state that there is a significant relationship between thinking styles and entrepreneurial characteristics, and at least one of the regression coefficients is significant. Table 5 shows the regression coefficients of prediction of entrepreneurial characteristics on thinking styles and statistics (T) and its significance level.

Table 5: Summary of regression coefficients predicting entrepreneurial characteristics from thinking styles

Variables	Non-standardized coefficients		Standardized coefficients	T	Sig.
	B	Criterion error	B		
Constant	196	50		3.891	0.01
Synthesit	-0.010	0.222	-0.042	-0.452	0.652
Idealism	-0.245	0.248	-0.076	-0.988	0.324
Pragmatism	0.496	0.241	0.156	2.06	0.041
Analyst	0.159	0.244	0.051	0.651	0.515
Realism	-0.557	0.216	-0.222	-2.58	0.010

Standardized beta coefficients indicates that realism (-0.222) and pragmatism (0.156) respectively, have the largest share in explaining the characteristics of entrepreneurship. It should be noted that according to Table 5, variables that have not reached the threshold level in terms of significance are eliminated from the equation of the model. In fact, the equation of entrepreneurial forecasting model is written from the thinking styles as follows.

The degree of entrepreneurial characteristics= (196) (constant value) + (0.496) pragmatism (-0.557) (realism)

Discussion and conclusion

According to Sternberg, thinking styles are less considered than what they deserve, and more attention is paid to the performance of individuals, whereas most failures and achievements attributed to the abilities of individuals are due to their thinking styles.

Thinking styles refer to preferred approaches for individuals to use their abilities. Thus, the thinking style is not ability on its own, but refers to how to use abilities. According to Sternberg, as there are different ways to guide and manage society, thinking styles also affect the process of personal management.

As people with their own thinking styles think f method of doing things, if we become familiar with their thinking style, we can better understand how others think that this enables us understand their

communication, predict their behavior and know how others influence them. This also empowers us to express our thoughts in a way that is more in line with their thinking styles.

While thinking styles have to do with how to use abilities, entrepreneurial abilities are influenced by thinking styles. These abilities are known as the traits and characteristics of the entrepreneurial person. The present study examined the relationship between thinking styles and entrepreneurial characteristics of faculty members of the distance education system. The results suggested that the styles of realism and pragmatism are two superior styles among the scientific members, and synthesit, analytical and idealist styles are in the next ranks. Realistic thinking style has a significant negative relationship with entrepreneurial characteristics. About realists, Harrison and Brahmson have stated that they are decisive and quick in getting down to the real business, and tend to have an honest, strong, and open experience, but not necessarily aggressive. They look for real and tangible things and have little tolerance for ambiguity and duplexes. They believe that to achieve anything, they must first set goals and then plan their work to achieve those goals [Hashemi, et al, 2011]. Realistic people tend to have a sincere and strong appearance, and their most important strategy is the empirical discovery, the cornerstone of realism. Different studies - Aghapour and Habibi 2013 [Aghapour & Habibi, 2013], Zhao & Cybert 2006 [Zhao, & Seibert, 2006], Gratian & Colleagues 2010 [Graevenitz, Harhoff, Weber, 2010], Fairyland and Holleran 2012 [Fairyland and Holleran, 2012], and Rezaei and Rahsepar 2009 [Rezaei, and Rahsepar, 2009] – have stated some characteristics for entrepreneurs. These characteristics are actors, dreaming, success thirst, risk taking, challenge seeking, independence, creativity, tolerance of ambiguity, failure tolerance, predictability, accountability, etc. Comparing the characteristics of realistic people with the characteristics of entrepreneurs shows that realistic individuals do not have entrepreneurial characteristics such as ambiguity tolerance, risk taking, tolerance of failure and the negative relationship between the style of realism thinking and the characteristics of entrepreneurship was expected.

The style of pragmatic thinking in a positive direction has a significant relationship with the rate of entrepreneurial characteristics. On pragmatists, Harrison and Brahmson have stated that they are humorous people who readily agree with the thoughts of others, but do not avoid differences, unlike the idealists, yet they do not welcome it like synthesit. They are not people with large and long-term plans, but they tend to be practical and short-term thinkers with a systematic approach. They are tolerant of ambiguity more than others are and are less likely to be predicted compared to others and are good at planning for unpredicted days and are flexible and show creativity and innovation [Hashemi, et al, 2011]. Pragmatic individuals have entrepreneurial characteristics like tolerance of ambiguity, acting, creativity, and failure tolerance. The positive relationship between pragmatic thinking style and entrepreneurial characteristics is also consistent with the subject literature.

Synthesit, analyst, and idealist styles have no significant relationship with entrepreneurial characteristics. Individuals with synthesit thinking style are skeptical and emphasize basic and abstract ideas. They have contradictory ideas and can create a new idea of their combination and provide innovative and innovative solutions [Hashemi, et al, 2011]. According to them, each human has his own point of view and there are no two individuals with the same reality. The result of this study suggests that people with a synthesit thinking style do not have the characteristics of entrepreneurship, while considering the innovative and creative nature of these groups; they were expected to have some of the characteristics of entrepreneurship, like creativity.

Individuals with an analytical thinking style are the people who are apparently cool, hardworking, and possibly cold and difficult to predict and more interested in theory than any other style, and tend to have a theory for everything. They have a step-by-step and gradual approach greatly interested in planning and collect a lot of information for each planning. The result of the study showed that those who have an analyst thinking style do not have the characteristics of entrepreneurship, whereas these individuals tend to have theories and are thoroughly planned and looking for pre-designed and

predictable tasks. We expected them to have some of the features of entrepreneurship, such as being challenging, prospective, and practicing.

Persons with an idealistic thinking style have a holistic perspective, and like synthesists, they accept a wide range of different perspectives. They open up new horizons for themselves and can be creative and innovative. These people are affected by their high goals and standards, and have value attitudes toward issues and people. The results indicated that people with an idealist thinking style do not have the characteristics of entrepreneurship, whereas considering the innovative and creative nature of these individuals; they were expected to have some of the characteristics of entrepreneurship, such as creativity, accountability, and future orientation.

A review of the literature indicated that not many studies have been conducted in relation to the subject of this paper, but the relationship between other variables and entrepreneurial characteristics has been studied in different studies. Feiz (2009) showed that some of the characteristics of entrepreneurship have a significant relationship with gender, and some other features have no significant relationship with it. Pour Pour Kiani and Shahyly (2010) showed a relationship between time traps and thinking style [Pour Kiani and Shahyly, 2010]. Moreover, the results of Vyskarami et al. (2012) showed a positive and meaningful relationship between thinking and learning styles self-led learning [Vyskarami, et al, 2012].

Hashemi et al. (2011) showed that thinking styles was significantly correlated with organizational innovation. Pragmatic thinking style has the most correlation and predictive power with organizational innovation; after pragmatism, the style of realism thinking has the highest correlation and predictive power with organizational innovation. The analyst, synthesist, and idealism styles had a negative correlation with organizational innovation. In the present study, the pragmatic thinking style had the highest positive correlation with the entrepreneurship characteristics and realism style of thinking had the highest negative correlation with entrepreneurial characteristics. Moreover, synthesist, analyst, and idealism thinking styles had no correlation with the characteristics of entrepreneurship.

Suggestions

1. Giving the results, we need to be careful about selection of professors: they should have thinking pragmatic to educate the entrepreneurial graduates.
2. People's thinking styles are directly correlated to their traits and characteristics, so it is suggested that their entrepreneurship characteristics should be taken into account in selection of faculty members.
3. As thinking styles have preferences for using abilities, and thinking styles help us understand better and make better use of our abilities, some conditions must be provided that make faculty more familiar with their thinking styles, and use them in creativity and innovation to match the styles of thinking and abilities that increase the capabilities.
4. For a professor to be motivated to think about entrepreneurship, it is advisable to have extensive and continuous interaction with socio-economic and productive environments.
5. To shift the thinking of professors toward entrepreneurship, university curricula should change from being subject-oriented to occupation-orientation and entrepreneurship.

Acknowledgments

At the end, we show our gratitude to of the presidency, deputies, and officials of Payam-e Noor University of West Azerbaijan for their contribution to the study. Moreover, we appreciate principals, the faculty members, and invited professors of centers and units of Payam-e Noor University of West Azerbaijan for their support for the completion of the questionnaires of this paper.

References

- Aghapour, B. & Habibi, H. (2013) offering the forecast model entrepreneurial characteristics from value orientation and demographic features of Payam Noor University teachers, second international conference on management, entrepreneurship and economic development by Mohammad Shirazi-Pour Mahdi Iranmanesh, Maasome Yazdan Panah Meriki, Gom, Jabbari Publications, pp. 1015-1027
- Agha-Jani, H., Ganjehkor, Z. (2010). Role of psychological characteristics of entrepreneurs in the independent entrepreneurial process, *Transition Management Research Letter*, the second year, No. 4, pp. 140-118. (In Persian)
- Ahmdpur, M., Moghimi, S.M. (2006). *Foundations of Entrepreneurship*, Tehran: Frandysh Publication. (In Persian)
- Akbari, K. (2007) *Development of entrepreneurship - educational approach*, Tehran University. Jihad Organization Publications. (In Persian)
- Ali Miri, M., (2008) *Entrepreneurship education: the emergence, development, trends and challenges*, *Journal of Entrepreneurship*, the first issue, pp. 169-133. (In Persian)
- Alimardani, M., et al, (2009). Examine the relationship between organizational structure and organizational entrepreneurship, the *Journal of new approach in Educational Management*, Second Year, No. III, pp. 131-144. (In Persian)
- Arabibam, E. (2001) the relationship between thinking style of Islamic Azad University professors and level and scope of their thinking, MA thesis, University Rudhen. (In Persian)
- Caliendo, M., Fossen, F.M., & Kritikos, A.S. (2010). The Impact of risk attitudes on entrepreneurial survival. *Journal of Economic Behavior and Organization*, Vol, 76, pp: 45–63.
- Chambers, B. (2002). The American Bulgaria University as an Entrepreneurial University. *Higher Education in Europe*, Vol. 26, No.2, P.108-118.
- Fairlie, Holleran, W. (2012) Entrepreneurship training, risk aversion and other personality traits: Evidence from a random experiment. *Journal of Economic Psychology*. Vol 33, pp: 366–378
- Farhang, S., Agha Mohammadi, A. (2007). Investigate entrepreneurship capabilities of Babol Technical University, *Payam Noor*, Issue III. (In Persian)
- Faiez, D. (2008). Effect of gender on entrepreneurial characteristics of students, *women social - Psychological studies*, seven years, Number 2, pp 41-21. (In Persian)
- Ghasemi, J., Assadi, A. (2010). Factor analysis of element in creating a spirit of entrepreneurship in graduate students, *Journal of Economics and Agricultural Development (Agricultural Sciences and Technology)*, Volume 24, Number 1. Pp. 22-13. (In Persian)
- Giannetti, M., Simonov, A., (2004). On the determinants of entrepreneurial activity: social norms, economic environment and individual characteristics. *Swedish Economic Policy Review*. Vol 11, pp: 269–313.
- Graevenitz, v.g., Harhoff, D., Weber, R. (2010). The effects of entrepreneurship education, *Journal of Economic Behavior & Organization*, Vol. 76:p.90–112.
- Golshkoh, F., et al (2009) the relationship between students thinking styles, achievement motivation, achievement and creativity with entrepreneurship. *New findings in psychology journal*, No. 4, 105-118. (In Persian)
- Izadi, Bentol Hoda and et al (2016), influencing Factors and Obstacles for Accomplishing Entrepreneurship Development in Agricultural Home-Based Businesses in Villages of Shiraz, *Iranian agricultural Extension Education Journal*, Volume 12, Issue 1, Summer and Autumn 2016
- Haghighat Joe, Z., et al (2009) The relationship between thinking styles and management entrepreneurship with personnel organizational health in Medical Sciences university, *Journal of Nursing and Midwifery School*, Volume VII, Number One, 13-20. (In Persian)
- Hashemi, S. A., and et al (2011) examined the relationship between varieties of thinking style and creative and innovative in Lamerd school administrators, *Curriculum research*. Year VIII, Volume II, No. 30, 63-72. (In Persian)
- Hezarjaribi, J., ebrahimi, Maryam (2010). Comparative study of the relationship between entrepreneurial characteristics of organizational workers (female and male) and job satisfaction, *applied sociology*, in the twenty-fourth, Number 40, pp. 18-1. (In Persian)

- Hosseini Lorgany, SM., et al. (2008.) Entrepreneurship Education in New Millennium: infrastructure for employment of higher education graduates. *Journal of Research and Planning in Higher Education*, No. 50, pp. 137-120. (In Persian)
- Kadivar, P., et al (2010) The relationship between thinking styles and self-regulation and motivation, *Psychological Research*, No. 6, pp 30-46. (In Persian)
- Kaviani, M., (2005) the relationship between thinking styles and self-efficacy and achievement in Tehran High school female students. Master's thesis, Tehran Center unit. (In Persian)
- Kossary, Maryam and Reza Norouzzadeh (2010), Description of the Characteristics of the Quadruplet Elements Undergraduate Curriculum with Emphasis on Training Entrepreneurship Skills, *Quarterly Journal of Research and Planning in Higher Education* , Volume 15 - Issue 4 (winter 1-2010 - Serial : 54)
- Malki-aleagha.B (2007). University Role in the development of entrepreneurship, *New Ideas in Educational Sciences*, Number 4 (8), pp. 127-115. (In Persian)
- Meek. W.R., Pacheco. D.F., York. J.G. (2010). The impact of social norms on entrepreneurial action: Evidence from the environmental entrepreneurship context. *Journal of Business Venturing*, Vol .25, p: 493–509.
- Mirmohammadrezaee, Zahra and majedeh gholipour(2016), Assessing the Spirit of Entrepreneurship and its Influencing Factors on Entrepreneurial Skills among Taught Young People in comparison with Untaught Trainees in Technical and Vocational Training Organization, *Sociological Studies of Youth Journal*, Volume 6, Number 21 (Spring 2016)
- Mirza Mohammad, M.H. and et al (2008). Examined barriers to entrepreneurship development in Shahed University from point of view faculty. *Letter of higher education, new courses*, No. IV, pp. 50-33. (In Persian)
- Moharer, A. et al (2012) the relationship between thinking styles, achievement motivation, achievement, creativity, and entrepreneurial in Kerman province physical education students, a National conference on entrepreneurship and business management knowledge base. (In Persian)
- Navabakhsh, M., (2010). Investigate the cultural factors that influence the culture of entrepreneurship, *Journal of Cultural Management*, fourth, seventh issue. Pp. 23-1. (In Persian)
- Pour Kiani, M. and Shahylu, F. (2010) the relationship between managers thinking and time traps, *Tadbir journal*. No. 216, 60-64. (In Persian)
- Rasheed, H. S (2000). Developing entrepreneurial potential in youth: The effect of entrepreneurial education and venture creation. Available at: <http://www.coba.usf.edu/departments/management/>
- Razavi, A., Alishiri. A. (2005) a comparative study of the relationship between thinking styles and academic achievement of high school boys and girls, *Journal of educational innovation*. Number 2, 86-108. (In Persian)
- Rezaei, M.H., Rahsepar, T. (2009). Investigate entrepreneurship characteristics of students of Darab Islamic Azad University, the *Journal of new approach in Educational Management*, First Year, No. 2, pp. 62-45. (In Persian)
- Sadeghi-Shahmirzadi, S. and adli, F., (2010). Relationship between higher education and nurturing the entrepreneurial spirit of students, *Educational Research Branch BOJNURD*, No. 22, pp. 90-73. (In Persian)
- Samadaghaei, J. (2004) Creativity is the essence of entrepreneurship, Tehran University pub. (In Persian)
- Samadaghaei, J. (2009). Entrepreneurial organizations. Tehran: Center for Public Management Education. (In Persian)
- Seljuki, K., (2009). Culture of entrepreneur, entrepreneurial culture, the importance, necessity and status, *Book of the Month Social Sciences*, No. 23. (In Persian)
- Shah-Hosseini, A (2007). Entrepreneurship, Tehran, Ayzh publications. (In Persian)
- shokri, O., et al (2004) The relationship between thinking styles approaches to learning and achievement of students. *Cognitive Science*, 8 year, No. 2, 44-52. (In Persian)
- Strenberg, R. J. (1997). *Thinking styles*. Cambridge university press .
- Vyskarami, H.A., et al (2012) Comparative study of the thinking styles functions and self-directed learning in nursing and midwifery student in Mashhad University of Medical Sciences, *Research in Medical Science Education*. No. 4, pp 53-62. (In Persian)

- Zahedi, S., and Bazargan, A. (2013). Consider faculty members about their professional development needs and need assessment methods, *Journal of Research and Planning in Higher Education*, No. 67, pp 69-89. (In Persian)
- Zali, MR, et al (2007). Evaluation of entrepreneurial characteristics of students, *Journal of Humanities teachers, Management Special Letter*, pp. 113-81. (In Persian)
- Zhang. Li – F, (2001), D0 Thinking Styles contribute to academic achievement beyond abilities? *Journal of Psychology* 135, 621 – 637.
- Zhang. Li – Fang, (2002), Thinking Styles and modes of Thinking: implications for education and research *Journal of Psychol* NO: 136 (3): pp 245 – 61.
- Zhao, H., & Seibert, S. E. (2006). The Big Five personality dimensions and entrepreneur status: A meta-analytical review. *Journal of Applied Psychology*, Vol. 91, pp: 259–271.