Study of the Relationship between Different Types of Thinking and Innovation of School Managers

Mokhtar Ranjbar and Solaiman Rashidi

Abstract

The purpose of this research is to investigate the relationship between different types of thinking and innovation among school managers. This research is applied in terms of method, descriptive-correlation. The statistical population of the study includes all school managers in Mohr city that are 57 persons. Due to the limited statistical population, the census method was used to select the sample and the entire statistical society was considered. For data collection, Harrison & Bramson Standard Thinking Questionnaire (2002) and Zare'i Innovation Scale (2006) were used. For the Thinking Questionnaire, the reliability coefficient was 0.81 for Cronbach's alpha and 0.86 for the Innovation Questionnaire, which have high reliability. In order to achieve the desired validity of the questionnaires, the validity of the content was evaluated by the opinion the supervisor. Data were analyzed by SPSS software version 19, descriptive statistics at first level and inferential statistics methods (Kolmogorov-Smirnov test, Pearson correlation coefficient, regression analysis, t-test for two samples Independent) has been used. The results of the research showed that there is a significant relationship between thinking styles (pragmatism and realism) and innovation of school principals in the city of Mohr. However, there is no meaningful relationship between the thinking styles (combining, idealism and analyticity) and the innovation of the school principals in the city of Mohr. Thinking styles (combining, pragmatism, and realism) have been significant predictors of innovation (cultural dimension). Thinking styles (idealism, pragmatism, and realism) have been significant predictors of innovation (structural dimension).

Keywords: Thinking Style, Creativity, Innovation, Management.

Mokhtar Ranjbar
(Corresponding author, Assistant Professor, Department of Management, Lamerd Branch, Islamic Azad University, Lamerd, Iran)
Solaiman Rashidi
(Master of Educational Research, Lamerd Branch, Islamic Azad University, Lamerd, Iran)

Introduction

An influential factor in the innovation is thinking style managers. The thinking style refers to the preferences of individuals in using their ability to solve problems, not their own abilities; hence, people with the same abilities may exhibit different behaviors-due to differences in intellectual preferences (Babaei, 2010).

The difference in thinking style makes it possible for them to be guided in the proper career path. The adaptation of people's thinking styles to their jobs leads to their innovation in their careers, and it is better to assign the tasks assigned to the people in line with their thinking styles (Karimi, 2007).

Human beings have different differences in their abilities, talents, pleasures, and finally the style of thinking. Paying attention to these differences makes it possible for people to be guided skills, knowledge and knowledge of employees, as well as enhance their professional identity. Managers should be able to co-operate with each other, and even the peripheral community, and lead their organization in partnership, mediating tensions and encouraging the professional development of employees and, most importantly, being the factor of change and innovation in the organization (Abrisham, 2005).

Changing the positions and expectations of today's organizations requires that consideration be given to the views and styles of management thinking appropriately in the direction of education and work. Perhaps the most important thing to be aware of and aware of is the existence of different thinking styles in individuals. Attempts to adapt organizations to complex social, economic, and cultural changes, and the need for effective management and leadership styles and theories require managers to be outsourced to a simple, responsible official and operational manager, and to be the best factor in modernizing, modifying and Improve organization and employee success. (Series, 2010). Many studies have been conducted on the effectiveness of organizations, including schools, which have emphasized the role of director and his managerial approach to the effectiveness and efficiency of the organization. Strong and motivated management and leadership in the organization will further enhance the and the role of managers as the most important factor in the transformation and innovation. In the same vein, research findings suggest that in order to make any successful transformation and innovation in the education of managers, they must have the motivation and power to accept and implement new ideas. Stirtin and Clark (1998) state that the ultimate opportunity for any change in education in the hands, brain and heart of those working in the school (quoted by Iranzadeh, 2008). For an organization that is competing in a changing and uncertain environment, innovation

(creation, transfer, reaction and change of ideas) is critical to the growth, success and survival of the organization. The individual innovation of employees in the workplace is the core of any organization's performance enhancement. Therefore, studying the motivations and factors behind this innovation is very important (Armstrong, 2006).

The studies show that less attention has been paid to the impact of theories and styles of thinking on the incidence and development of innovation. Theories and styles of management thinking appear to be very effective in the growth of innovation or its decline. What emerges from this research is that there are many variables affecting innovation, but the research carried out has examined external variables in the organization. Meanwhile, intrapersonal variables such as emotion, attitude, personality, way of thinking and feeling can be one of the variables influencing the level of innovation of individuals. By identifying these variables, it may be better to explain the motivation of innovation, prediction and control Made Among these variables, the variable that most influences on individual behavior is the managers' mindset. The human attribute is the ability to think. People do not act as they think. Thinking styles are important topics that have been considered in the humanities epistemology in recent decades. Considering the style of thinking, one can discuss the attitudes and behaviors of individuals, including managers, on various issues. The results of research generally suggest that people's thinking styles are different.

Considering the importance of thinking styles and its relationship with the innovation of school principals, this research investigates the relationship between different types of thinking and innovation among school managers in Mohr city. Finally, the researcher is seeking to investigate whether there is a relationship between thinking styles and the dimensions of innovation in school managers in Mohr city.

Theoretical Basics of Research

One of the most prominent features of man and the basic axis of his life is his power of thought. During his lifetime, man has never graduated from thinking and thinking and has helped to make decision-making and has been able to solve problems and problems. Therefore, all the successes and advancements of human beings are dependent on fertile, dynamic and effective thinking. Similarly, the assumption that thinking of a way to further education is completely accepted. As many parents believe that it does not matter what their children are learning or studying (Baird, 2017). What they care about is that their children learn how to think, decide and judge. Thinking is one of the most important issues involved with the minds of scholars. In other words, thinkers believe that human beings,

their culture and civilization are indebted to thought. In general, the distinction between human beings and other beings is his thinking.

Thinking Style

Style in the word means the method. It is also a distinctive and behavioral behavior or practice. According to Sternberg, style is a preferred way of thinking. The style of how people communicate, find problems and interact with each other is very influential. There are three distinct ways to distinguish the thinking style of others: observing behavior when addressing affairs, asking others about how they perceive people's style, and completing one or more psychological questionnaires (Abrisham, 2005).

Although there is a difference between theorists in terms of terminology, they all emphasize the fact that there is a consistent and distinct method for encoding, storing and executing, which is essentially independent of intelligence . Sternberg and Dieterman (1986) state that intelligence is essentially a tool for a related and relevant environment, in which most predictable forms of self-consciousness are related to intelligence. Styles, also related to intelligence self, are not ways to describe the thinking and preference of work for the application of talent potential talent. Therefore, intelligence is not the main idea of light, but the style is the way of using individual intelligence (quoted by Karimi, 2006).

The result of extensive research in the field of styles has led to the growth of several patterns that have expressed the concept of different structures such as cognitive styles, learning approaches, learning styles, learning strategies, teaching styles, and thinking styles. (Albaili, 2006)

Intro-thinking style

People with this style deal with internal affairs. They are people who pay attention to the inner circle, orbital task, retire from others, and occasionally to social unconsciousness and tend to work alone.

Outward-thinking style

These people are more oriented towards the outside world and are people-oriented. They often have social sensitivity and are aware of what is happening to others. They would like to work with others as much as possible.

Trends in thinking styles

The style of free thinking

These people like to think beyond existing laws and programs and seek for maximum change, and follow situations that are complex and ambiguous. They also prefer to be somewhat new and unfamiliar in their lives and work.

Conservative thinking style

Individuals with this thinking style tend to stay loyal to existing laws and programs, and seek for the least change, as long as they may avoid dealing with unknown situations and tend to have familiar

situations in their work and life. Such individuals are content with an organized and predictable environment. When such a structure does not exist, they try to create it (Biggs, 2014).The mentioned styles can be divided into two general style. The first type of thinking styles (such as legislator, judiciary, free thinker, hierarchical, holistic) are productive creativity and require complex information processing. People who use this style of thinking tend to challenge norms and accept danger. The second type of thinking styles (such as executive, monopolar, minor, conservative) require simple information processing. People who use this style of thinking are willing to maintain norms and authority. The four remaining thinking styles (such as anarchy, oligarchy, internal and external) can be either complex or simplistic in each of the two styles of thinking, depending on the style of the particular subject.

Relationship between thinking styles

Zang (2002, quoted by Iranzadeh, 2008), considering the nature of the thinking styles and the empirical findings derived from Sternberg's theory of self-management (1997, 1994), believes that seven types of legislative, judicial, general thinking styles Attitudes and ideas are described as productive, creative and complex information processors. The second type thinking styles are executive, conservative, and conservative, interested in the norm and power of the mandate, and require simple information processing.

Zang (2002) examines the modes of thinking based on the cognitive-orientation approach and, for measuring it, utilizes Torrance's style of thinking and thinking (1988). Although the Toronto Learning and Thinking Tool Questionnaire has been claimed to be based on theory and research on the specific functions of the brain hemispheres, this tool measures two different ways of thinking, that is, analytical and universal thinking, and when both methods of thinking It is also used to arrive at a hybrid way of thinking, and argues that my argument can be supported by more recent findings from recent studies (eg, Bennich, 1998, Bischne and Chyerlo, 1998) (quoted by Abrisham, 2005).

Bunch and Heller (2007) state that two hemispheres are more dynamic and interactive. The authors have argued that the brain-left is not the verbal information processor, and the brain-right of the spatial information processor. Conversely, the brain-left is devoted to the processing of information in a gradual, analytical and sequential manner, which is a good way to process verbal information. Brain-Right is designed to process information in a general way that is suitable for spatial information processing. Applying both methods allows the hemisphere to dynamically process the information. Therefore, the findings indicate that brain

conquest is in fact a way of thinking.

Innovation

From innovation, definitions have been numerous, culture has defined the platform for innovation as the ability to carry out an innovative process that leads to the creation of a new product or service in such a way that this ability may originate from the intelligence and talent of individuals or through education. Halt used the term innovation in a broad sense as a process for using knowledge and information to create or introduce new and useful things. Warking also explains: "Innovation is everything that has been revamped, designed to be truth-proof, and strengthens the position of the organization against competitors, and also provides a long-term competitive edge, in other words, innovation is the creation of something new. Which pursues and implements a given goal. "(Busato, 2012). Keith (2008) states: Innovation is the emergence of new ways of solving various organizational problems by a group of employees in different disciplines. Therefore, in a general definition, innovation can be defined as any new idea of an organization or an industry or a nation or in the world. According to the above definitions, the innovation is the construction of thought and thought(Diseth,2014).

Organizations interact continuously with their external and internal environments and are influential and influential, and there are numerous, varied and complex changes that exist in the external environment that organizations cannot be indifferent to them. In the case of indifference and persistence of repetitive behaviors in a closed environment, these types of organizations are in danger of being ruined and unable to maintain the status quo. Therefore, the continuity and survival of the organizations and the realization of their goals requires that the movement of creativity and innovation in the organization's corps, namely, employees, managers and organizational structure, be projected and developed in a continuous and inclusive manner, to avoid collapse and Destruction is safe (Iran Zadeh, 2008).

Continuous and inclusive improvement and innovation is in fact a systematic exploration of new ways and responses to pressures and environmental changes, as in today's complex and changing environments, repeated responses to these changes are not effective. It is constantly necessary to look for new ways to respond to the environment. In other words, those organizations and systems in a complex environment can continue to survive, which can continuously create and publish new ideas and initiatives that are needed to deal with environmental pressures and changes.

The role of management in fostering creativity and innovation in the organization

The role of management in collections in which creativity and innovation are essential and essential factors (especially centers and research institutes) is critical because management can create, promote, and act on creativity and innovation in individuals. And his performance can prevent this vital. The creative director's art is to use the creativity of others and find creative minds. The creative director should create a space that can be creative and create individuals for creativity, and this space is a space away from everyday work and in a way that empowers everyone to solve their own problem. In order for individuals to think in the organization, one must create an environment in which ideas and ideas can be expressed (Kember, 2013). One of the most important ways to foster human personality, as well as creativity and innovation, and even social growth and social adventure, is without doubt the more adventurous people have wisdom and thought, and those who are not from it do not enjoy this privilege. A creative organization is largely dependent on the self-control of its employees. Self-control shows itself in the desire and willingness to provide initiative and creativity (Harper, 2009). Managers can influence the main components of creativity, namely, expertise, creative thinking skills and motivation. But the fact is that the impact on the first two components is much more difficult and time-consuming than motivation. Internal motivation can be increased considerably with even minor changes in the organization's environment. This does not mean that managers should forget the expertise and creative thinking skills. But when priority is given to action, they need to know that effective measures on internal motivation will result in more immediate results.

Research background

Nurshahi (2014) has studied the relationship between thinking and leadership style of university heads and higher education institutions in Tehran. He concludes that there is a significant correlation between thinking styles and leadership style of leadership, and there is a negative correlation between analytical thinking and abandoned leadership style.

MehrjouKamali (2013) concluded in his research entitled "Investigating the Relationship between Managing Thinking Styles and Accepting Changes in the Organization": The acceptance field of change among executives who have an executive or judgmental style of thinking with managers who have less These are styles of thinking, there is a significant difference.

Emamipoor (2013) studied the development of thinking styles in students and students and their relationship with creativity and academic achievement. He concluded that there is a

meaningful relationship between the styles of thinking and creativity.

Hashemi; Sadeghifard and Hemmati (2011) in a research entitled "The Study of the Relationship between Types of Thinking Style and Creativity and Innovation of School Lamerd Schools Managers", which was conducted among all the managers of Lamerd city in 2008-2009, found the following results:

Pragmatic thinking style has the most positive relationship and the analytic thinking style has the most negative relation with organizational innovation. Also, pragmatist thinking style has the highest correlation with the cultural dimension of organizational innovation. In addition, the style of the realism thinking has the most positive and significant relationship, and the combined thinking style has the most significant relationship with the structural dimension of organizational innovation. The analytical thinking style has the highest negative correlation with human resources dimension.

Zarei (2011) in his research entitled "The Study of the Relationship between Different Styles of Organizational Thinking and Innovation" reported that there is a meaningful relationship between the styles of thinking and organizational innovation of managers.

Linda Marie Glein (2013) explores the thinking style of educated librarians and their relationship with effective working relationships. The results of this research are reported as follows: People with flexible thinking styles who have the ability to use all five styles of thinking in different situations have plenty of flexibility. In a study entitled Thinking Styles and the Impact of a Group Environment on Adults, SharenRoden (2012) concluded that individuals who are able to work in the context of their own thinking style have more job satisfaction.

In the study of Dai and Flerhaus (2012) on 96 sharp-skinned students aged 12 to 17 years, the relationship between thinking styles and standardized academic achievement tests was studied. The relationship between universal style and verbal standard test was significant. (R = 0.42), but there was not a significant relationship between judicial style and academic achievement.

Albayli (2011) conducted a research entitled "A Study on the Difference between Thinking Styles among UAE University Students with Low, Moderate, and High Success". The results showed that: Students with lower level of success significantly scored lower scores in hierarchical executive thinking styles, topical, conservative and internal chaos (lawlessness).

Bernardo (2009) examined the relationship between the styles of thinking and academic achievement of Manil students using the short form of thinking styles and students' scores with the G.P.A test. The results showed that

executive, judicial, conservative, insolvent, inferior and introspective style had a significant relationship with general academic achievement (G.P.A) at the level of x = 0.05. Conservative style correlations with academic achievement have been negative.

Guanagossia and Mages (2007) studied the relationship between the styles of thinking and academic achievement in Spanish students that students with internal and internal thinking styles have more academic achievement.

Research Methodology

The present study is an applied target area and a correlation survey approach. The population of this research includes all school

Research findings

Demographic Findings

principals in Mohr city, whose number is 57, and is surveyed by the census method of all individuals as sample units. The research tool was Harrison & Bramson Style Standard Thinking Questionnaire (2002) and Zare'i Innovation Scale (2006). For reliability style questionnaire, Cronbach's alpha test was 0.81 for the Innovation Questionnaire (0.76), and the In order to achieve the desirable validity of the questionnaires, content validity was assessed through content validity with the opinion of the supervisor and also the Bartlett test, which for the thinking style questionnaire is 0.906 and for the Innovation Questionnaire is 0.812, which are highly reliable.

Table 1. Descriptive Results for Demographic Variables.

Variable	Classes	Frequency	Percentage
Gender	Male	27	47.4
	Female	30	52.6
Total		57	100
Education	Bachelor	40	70.2
	Master's or higher	17	29.8
Total		57	100
Management section	Elementary	34	59.6
	First high school	11	19.3
	Secondary school	12	21.1
Total		57	100
Record (year)	Less than 5	9	15.8
	5 to less than 10	18	31.6
	10 to less than 15	13	22.8
	15 to less than 20	8	14
	or more 20	9	15.8
Total		57	100

Inferred Findings

Main question: Is there any meaningful relationship between thinking styles and the dimensions of innovation in school principals in Mohr?

Table 2. Correlation coefficient between thinking styles and innovations and its dimensions.

Types of thinking style		Innovation	The dimensions of innovation		
			Cultural	Structural	Human resources
hybrid	Pearson correlation p-value	0.036 0.793	0.142 0.291	-0.265 0.048	-0.039 0.775
Idealistic	Pearson correlation p-value	-0.030 0.832	-0.087 0.519	-0.040 0.768	0.302 0.021
Pragmatism	Pearson correlation p-value	0.298 0.027	-0.282 0.034	0.271 0.043	0.097 0.474
Analytical	Pearson correlation p-value	0.030 0.827	0.266 0.048	0.072 0.596	-0.149 0.269
Realism	Pearson correlation p-value	0.276 0.041	0.119 0.379	0.315 0.012	0.003 0.984

Regarding the values of p-value obtained in Table 4-5, it can be seen that the correlation coefficient between hybrid thinking style and the structural dimension of the dimensions of innovation is significant and is equal to 0.265. The correlation coefficient between the style of Idealistic thinking and the dimensions of human resources is only significant from the dimensions of innovation (0.302).

But the correlation coefficient between the style of practical thinking with innovation and also with the cultural and structural dimensions of the innovation dimensions is significant and is respectively 0.298, 0.282, and 0.271, respectively. The correlation coefficient between the analytic style of thinking style and the cultural dimension of the dimensions of innovation is significant and is equal to 0.266. The correlation coefficient between the styles of realism thinking is significant only with the innovation and structural dimension of the innovation dimensions and is respectively equal to 0.276 and 0.315. In other cases where the values of p-value are greater than 0.05, the correlation coefficient is not significant.

First sub-question of research: Which thinking style is a significant predictor of innovation in school principals in Mohr?

Table 2. Multiple linear regression analysis for the first sub-question of the research.

	β	β (standard)	p-value	R	R^2	Significance test of regression	
						F	p-value
(Constant)	3.108		0.000	0.393	0.154	12.403	0.000
hybrid	0.296	0.303	0.032				
Idealistic	0.294	0.298	0.071				
Pragmatism	0. 381	0.386	0.005				
Analytical	0.124	0.132	0.127				
Realism	0.407	0.413	0.003				

Regarding the value of F (12.403) and its p-value (0.000), which is less than 0.05, it can be concluded that the regression is significant at 0.05. The coefficient of determination (R^2) is 0.154, which indicates that the types of thinking styles in general have explained 15.4% of the changes related to the innovation variable. Also, the correlation coefficient (R) is equal to 0.393.

Considering the values of p-value for testing the coefficients of different types of thinking styles, it is considered that the value of p-value of the combined coefficient of light (0.296) is 0.032 pertaining to the style of pragmatism (0.381) is 0.005 and related to the style Realism (0.407) is equal to 0.003 which is less than 0.05 and is significant and is not significant for other thinking styles more than 0.05. Therefore, it can be concluded that among different types of thinking styles, combination styles, pragmatism and realism have the most effect on innovation and have been significant predictors of innovation. Considering the values of it is also found that this effect β, has the highest value for realistic style compared to other styles.

Second sub-question of research: Which type of thinking (combination, idealism, pragmatism, analyticism, and realism) is a significant predictor of the cultural dimension of the innovation of school principals in Mohr?

Regarding the value of F (9.971) and its p-value (0.000), which is less than 0.05, it can be concluded that the regression is significant at 0.05. The coefficient of determination (R2) is 0.134, which indicates that the types of thinking styles in total explained 13.4 percent of the changes related to the cultural dimension of the variable of innovation. Also, the correlation coefficient (R) is 0.366.

Table 3. Multiple linear regression analysis for the second sub-question of the research.

	β	β (standard)	p-value	R	R^2	Significance test of regression	
						F	p-value
(Constant)	2.045		0.004	0.366	0.134	9.971	0.000
hybrid	0.277	0.281	0.029				
Idealistic	0.408	0.052	0.507				
Pragmatism	0.229	0.232	0.043				
Analytical	0.038	0.032	0.541				
Realism	0.345	0.323	0.012				

Considering the values of p-value for testing the coefficients of different types of thinking styles, it is seen that the value of p-value of the combined coefficient of light (0.277) is 0.029, related to the style of Pragmatism (0.229) is 0.043 and the style Realism (0.345) is 0.012, which is less than 0.05 and significant, and is not significant for other thinking styles more than 0.05. Therefore, it can be concluded that among different types of thinking styles, hybrid styles, pragmatism and realism have the most effect on the cultural dimension of innovation and have been significant predictors of the cultural dimension of innovation. Considering the values of β, it is also found that this effect has the highest value for realistic style compared to other styles.

Third sub-question of research: Which thinking styles (combining, idealism, pragmatism, analyticism, and realism) is a significant predictor of the structural dimension of school administrators in Mohr?

Table 4. Multiple linear regression analysis for the third sub questionnaire.

	β	β (standard)	p-value	R	R^2	Significance test of regression	
						F	p-value
(Constant)	0.718		0.351	0.403	0.162	15.319	0.000
hybrid	0.036	0.041	0.658				
Idealistic	0.291	0.304	0.003				
Pragmatism	0.414	0.418	0.000				
Analytical	0.155	0.162	0.261				
Realism	0.388	0.313	0.005				

Regarding the value of F (15.319) and its p-value (0.000), which is less than 0.05, it can be concluded that the regression is significant at 0.05. The value of the determination coefficient (R^2) is 0.162, which indicates that the types of thinking styles in total have explained 16.2% of the changes related to the structural dimension of the innovation variable. Also, the correlation coefficient (R) is equal to 0.403.

Considering the values of p-value for testing the coefficients of different types of thinking styles, it

is considered that the value of p-value related to the Pragmatism style coefficient (0.291) is 0.003 related to the pragmatic style (0.414) of 0.000 and related The value of realism (0.308) is 0.005, which is less than 0.05 and significant, and in other thinking styles it is more than 0.05 and not significant. Therefore, it can be concluded that among different types of thinking styles, idealistic styles, pragmatism and realism have the most effect on the structural dimension of innovation and have been significant predictors of the structural dimension of innovation. They are regarding the values of β, it is also observed that this effect has the highest value for pragmatic style compared with other styles.

The fourth sub-question of research: Which thinking styles (combining, idealism, pragmatism, analyticism, and realism), is a meaningful predictor of human resource dimension Innovations of school principals in the city of Mohr?

Table 5. Multiple linear regression analysis for the fourth sub-question of the research.

	β	β (standard)	p-value	R	R^2	Significance test of regression	
						F	p-value
(Constant)	1.173		0.129	0.261	0.068	5.419	0.002
hybrid	0.021	0.025	0.755				
Idealistic	0.123	0.129	0.128				
Pragmatism	0.217	0.220	0.046				
Analytical	0.048	0.052	0.571				
Realism	0.104	0.106	0.144				

Regarding the value of F (5.419) and its p-value (0.002) which is less than 0.05, it can be concluded that the regression is significant at 0.05. The value of the determination coefficient (R^2) is 0.068, which indicates that the types of thinking styles in total explained 6.8% of the changes related to the human resource dimension of the innovation variable. Also, the correlation coefficient (R) is equal to 0.261.

Considering the values of p-value for testing the coefficients of different types of thinking styles, it is seen that only the value of p-value for the Pragmatism style (0.217) is 0.046, which is less than 0.05 and significant and in Other styles of thinking are more than 0.05 and not meaningful. Therefore, it can be concluded that among the types of thinking styles, the Pragmatism style has the most impact on the human resource dimension of innovation and is a significant predictor for the human resource dimension of innovation. Regarding the values of it is also β, observed that this effect has the highest value for pragmatic style .compared with other styles

Fifth Sub Question: Are the styles of thinking (combining, idealism, pragmatism, analyticism,

and realism) between men and women managers of Mohr city schools are also significant?

To answer this question, an independent t-test used. The results are presented in the following table:

Table 6. Comparison of different types of thinking among male and female managers.

Style	Gender	Average	Standard deviation	t	P-value
hybrid	Male	52.96	9.42	1.48	0.144
	Female	56.67	9.40		
Idealistic	Male	53.15	5.72	1.31	0.196
	Female	55.63	8.46		
Pragmatism	Male	55.33	7.47	0.155	0.877
	Female	55.70	10.01		
Analytical	Male	50.52	7.70	0.741	0.462
	Female	48.80	9.58		
Realism	Male	57.19	6.38	1.99	0.051
	Female	52.87	9.45		

It is worth noting that the value of p-value obtained for kidney styles of thinking is more than 0.05. Therefore, it can be concluded that there is no significant difference between male and female managers in all styles of thinking.

Sixth Sub Question: Is there any significant difference between male and female managerial innovation (cultural, structural and human resources)?

To answer this question, an independent t-test used. The results are presented in the following table:

Table 7. Comparison of innovation and its dimensions among male and female managers.

	Gender	Average	Standard deviation	t	P-value
Cultural	Male	42.19	4.66	2.992	0.004
	Female	38.70	4.13		
Structural	Male	21.19	3.10	1.210	0.231
	Female	20.23	2.84		
human resources	Male	21.96	2.35	2.822	0.007
	Female	19.97	2.94		
Innovation	Male	85.33	7.91	3.109	0.003
	Female	78.90	7.69		

The p-value obtained for innovation as well as the cultural and human resources dimensions of innovation is less than 0.05. Therefore, it can be concluded that there is a significant difference between female and male managers in these cases.

Conclusions

For an organization that is competing in a changing and uncertain environment, innovation (creation, transfer, response, and change of ideas) is critical to the growth, success and survival of the organization. The individual innovation of employees in the workplace is the core of any organization's performance enhancement. Therefore, studying the motivations and factors behind this innovation is very important.

The attitude governing a collection is influenced by the intellectual philosophy of its executives. Since, naturally, the responsibility and authority are in the hands of managers, they behave in a way that their behavior, performance, and policies lead to their own intellectual approach, and this is undeniable. Individuals with different thinking styles want to use their abilities in different ways and respond differently according to their thinking. Individuals can have a stronger or weaker presence at different stages of their career, depending on their work environment and their thinking style.

Thinking is one of the most important issues that have been given special attention in education, so that the growth, cultivation and evaluation of thinking today is one of the basic functions of education. In managerial studies, the discussion of the thinking and perceptual methods of managers has a special place, and one of the topics to be considered in the discussion of thinking, creativity, and innovation. One of the basic approaches of an organization is innovation; its organizations and management play an important role in boosting the talents and the power of creativity and human resource innovation. The success of education in adapting to the needs of the community, as well as the basis for the transformation of society depends on the dynamism of the education system itself and the necessary changes and modifications to it continuously. Global environments and changing lifestyles, self-inducing, have a continuous need for curriculum dynamics. Most people feel that education is isolated from the process of industrialization, the focus of information and other developments, along with contemporary time, is not affected. While the reality is the only thing and the educational system of a country, due to its critical role and position, is a constant factor for attention.

Research suggestions

Applied suggestions

Considering that the results of this study showed that there is a significant relationship between the thinking style and the motivation of manager’s innovation, and then thinking styles is an important variable that can affect the motivation of innovation. Therefore, it is necessary to consider the style of thinking when choosing managers and selecting them and considering the

occupational and environmental characteristics of managers who have the appropriate thinking style for these environments.

By implementing in-service training, managers will be introduced to a variety of styles of thinking so that they can adapt their thinking style to the organization's abilities and characteristics in order to help them grow their own personality and enhance their organization. The conditions for teaching these thinking styles, which have a positive relationship with creativity, are included in the schools, as well as the teaching methods in schools that are designed to direct executives to their own thinking styles and to They will grow their way. Provide an appropriate field for presenting jobs by creative executives at managerial meetings.

In the educational centers, create creative workshops to provide the ground for the creativity and innovation of managers.

It is recommended that the organization sponsors, supports and encourages those who are new and creative ideas.

It is suggested that studying the phenomena and affairs of the school be broadened and examine issues from different angles and in different directions in order to provide the ground for their creativity and school members.

Provide adequate funding and an appropriate section to enhance the creativity and innovation of school principals, as it increases students' academic achievement and encourages them to attend school.

Research suggestions

It is suggested that a research on this issue be conducted using a direct comparison between male and female managers.

It is suggested that the subject of research should be done considering the importance of creativity and innovation of managers in other regions (with different culture and educational levels). The use of a questionnaire is not enough to examine all aspects and characteristics, and it is suggested that future research, such as interviewing, be used. Considering the relationship between the thinking style and the managers 'innovation, it is suggested that other factors affecting or related to the managers' innovation in the school environment should be investigated.

References

Abrisham. M. I. (2005). *The Role of Education in the Growth of Creative Thinking*. MSc Thesis. Islamic azad university, Science and Research branch.(In Persian)

Albaili, M. A. (2006). Reliability and validity of the Thinking Styles Inventory: Evidence from United Arab Emirates. *Proceedings of the 2006 Joint Annual conference of the Australian psychologys Society and New Zealand Psychological Society, Auckland, New Zeahand,* 26 – 30 September, 2006.

Armstrong, S. J. (2006). The influence of individual cognitive style on performance in management education. *Educational Psychology, 20*, 323 – 339.

Babaei, S. (2010).*Assessment of creativity and innovation and its effective factors among teacher education students*. Master's thesis, Tehran, Tarbiat Moalem University, Faculty of Education, Pages 1-14-15. (In Persian)

Baird, J. R. & White, R.T. (2017). Promoting self control of learning. *Instructional Science*, *11*, 227 – 247.

Biggs, J. B. (2014). Individual and group differences in study processes. British *Journal of Educational psychology, 48*, 266 – 279.

Busato, V.V. Prins, F.J. Elshout, J.J.& Hamaker, C. (2012).Intellectual ability, learning style personality , achievement motivation and academic success of psychology students in higher education. *Personality and individual differences* , 29-1057-1008.

Diseth, A.(2014).Personality and approaches to learning as predictors of academic achievement. *Educational and psychological, 17*,143-155.

Harper, G. & Kember, D. (2009). Learning styles of students in two distance learning institutes. *Paper presented at the 13th world conference International Council for Distance Education*. Melbourne.

Iran Zadeh, S. (2008). Recognition and Priorities of Participatory Management in the Executive System, *Journal of Applied Management of Public Administration, No. 33*-34, p.8.

Karimi, Y. (2007). *Social Psychology (Theories, Concepts, Applications).* Tehran: Arasbaran publication. (In Persian)

Kember, D. & leung, D.Y. P. (2013). The dimensionality of approaches to learning: an investigation with confirmatory factor analysis on the structure of the SPQ and LPQ. British *Journal of Educational Psychology. 68*. 395-407.

Series, P. (2010). *Cognitive styles (from the perspective of education).* Translated by Dariush Nowroozi and Akbar Salehi. Tehran: Amir Publishing. (In Persian)