



Leadership Creativity Scale for School Principals: Development and Application

Naser Shirbagi^{*1}, Sayed Mehdi Hosseini² & Amjad Kazemi³

ARTICLE INFO

Article history:

Received:

13/03/2022

Accepted:

09/09/2022

Available
online:

Summer 2022

Keyword:

Innovation,
Leadership,
Managerial
creativity,
principals,
Schools

Abstract

This study was conducted based on dual purposes; the first purpose was validation of the leadership creativity assessment scale from the perspective of teachers; the second purpose was to establish a qualification profile of the principals' leadership creativity using a standard tool. The current research applied a positivist epistemological orientation with a quantitative approach and evaluation method. The study population involved 1256 Sanandaj high school teachers of which 296 teachers (both males and female) were selected by stratified random sampling using selected using Krejci - Morgan Table. In evaluating the validity of managerial creativity questionnaire factor analysis was used and in assessing its reliability of it, Cronbach's alpha coefficient was applied to assess principals' of managerial creativity by teachers and the influence of demographic variables on teachers' assessment. Based on the findings of the study teachers evaluated their principals' level of Leadership creativity at a high level in their workplace. Moreover, it was revealed that teachers' demographic variables had no significant correlation to the scores of the Leadership creativity assessment.

Shirbagi, N., Hosseini, M., & Kazemi, A. (2022). Leadership Creativity Scale for School Principals: Development and Application, *Journal of School Administration*, 10(2), 147-165.

1. Department of Educational Sciences, Faculty of Humanities and Social Sciences, University of Kurdistan, Sanandaj, Iran.

* Corresponding Author: Email: Nshirbagi@uok.ac.ir

2. Department of Educational Sciences, Faculty of Humanities and Social Sciences, University of Kurdistan, Sanandaj, Iran.

3. Department of Educational Sciences, Faculty of Humanities and Social Sciences, University of Kurdistan, Sanandaj, Iran.

Introduction

Achieving sustainable productivity, creativity, innovation and the quality of life depends on efficient, effective, smart and committed manpower and management (Dessler, 2013). A prerequisite for the success of organizations in today's highly competitive world is the implementation of new ideas in the organization, which is possible by creative and innovative staffers (Alvani, 2006). In the educational system, creativity is crucial for school principals since the followers have strong belief on the ability of their leaders (Styhre & Sundgren, 2005). Since teaching and learning is the focus of all educational activities and is mostly carried out at school, the school principal is the most important director of change and innovation. Therefore, the evaluation of factors affecting innovation and creativity among principals is an inseparable principle in the management of any dynamic system (Newell & Simon, 1972). Because of the benefits of creativity at individual and social levels, identifying the factors affecting creativity and developing creative skills is essential in order to strengthen creativity in such environments such as schools (Runco, 2007). The principal of the school, who is responsible for the human resources and their performance, needs creativity. The principal needs to provide innovative ways to motivate teachers and increase their self-efficacy.

Today, management is introduced as a profession and has a special purpose, method, and technique, so that its actions require past managerial readiness. Subsequently, the continuous completion of the individual's managerial knowledge improves the quality of what is taught to guide the organization, with an environment that is changing in the light of ever-changing human and technological advancements. In this regard, paying attention to the creativity of

principals is very important. The managerial creativity of school principals has to be shaped and implemented in such a way that not only principles believe in its value themselves but also teachers, who play a very important role in the success of its implementation, believe in it and cooperate with principles (Shaikh Alizadeh, Tejary & Pyralaei, 2011).

The importance of creativity for educational leaders lead to the establishment of a center called center for creative leadership. This center operates in countries such as Russia, Ethiopia, South Africa, Singapore, India, and China, in which there are membership educational administration specialists and those interested in educational leadership topics. They try to empower educational leaders and to solve their problems in schools. They believe that organizations are increasingly reliant on HR departments to build a leadership pipeline of principals which are able to lead creatively through turbulent times. However, there seems to be a growing belief among principals and senior executives that their leadership programs are often not enough to help them develop their capacities to meet their current role requirements (Petrie, 2014).

Creativity has always been a mysterious and complex concept. Creativity may be the highest level of human learning, the highest ability of thought and the ultimate product of human mind and thought. Regardless of the old belief that creativity was due to the power of myths and supra, there are differences in defining and clarifying the term creativity among psychologists and researchers of mind in the field of psychology and behaviorism due to the ambiguity and complexity of its nature. Different view on creativity is summarized in Table 1.

Table 1. Different views on creativity

Major theories	Viewpoint	Description
Ancient theories	Goddess inspiration	Plato conceives creation as a divine blessing that comes from inspiration, not from upbringing.
	Frenzy	Self-efficacy and irrationality make the appearance of creation an output of madness.
	Intuitive genius	It was applied about creative man such as Da Vinci at the end of the Renaissance.
	Cosmic Force	The creative force lies in all creatures (Petrie, 2014).
	Psychoanalysis	Creativity emerges from conflicts in the mind of the individual's unconscious (Pirkhaefi, 2005).
Psychological Theories	Cognitivist	Creativity is based on evolution, which explains phenomena based on its general characteristics (Rahnma, Byjnvnd & Aliyari, 2011).
	social Psychology	The simultaneous role of the creative process, creative people, and the creative environment is taken into consideration (Sternberg, 2010).
	Humanism	Creativity involves not only achievements, but also processes and attitudes (Rahnma, Byjnvnd & Aliyari, 2011).
	investment	Investing in creativity depends on cognitive, personality, motivational and environmental resources (Sternberg, 2010).
	Evolutionary	They are one of the most practical theories of creativity and help in understanding the roots of creativity (Goertzel & Goertzel, 1976).
New scientific theories	Psychometrics	Focusing on measuring creativity and providing a variety of creativity awareness and cognition (James & Sternberg, 2010).
	Economic	Those challenging themselves are more creative than those who believe in a particular method or theory (Newell & Simon, 1972).
	process	The nature of the creative process is understood in the sequential and recursive cognitive stages (James & Sternberg, 2010).
	system	Creativity is a concept constructed from a complex system interacting with various components (Csikszentmihalyi, 1996).
	Experiencing	Based on creative personality and creative processes, he read puzzles like number puzzles (Newell & Simon, 1972).
	Find the problem	Exploratory search is not limited to a simple problem and is not limited to a specific location (Perkins, 1981).
	Transformation	A two-stage layout of thoughts and complexity is necessary to combine ideas and make creativity (James & Sternberg, 2010).
	Cognitive type	With respect to individual differences, one can understand the individual's perception of the process of creation in the initiatives differently (James & Sternberg, 2010).
	Cognitive	In the process of connecting ideas, they connect one after the other and connect to each other (Mednick, 1962).

The same is deduced from Table 1. It seems that a comprehensive and complete theory that addresses all of its dimensions and features has not been presented yet. Theories of creativity have become more scientific and serious with respect to time.

Managerial creativity can be observed in an effective manager who has the characteristics of

curiosity, sensitivity, courage, realism and efficiency, and whose potential creativity enables him/her to manage the work area under his guidance efficiently and from his colleagues and subordinates as personal innovator (Khandwalla, 2003).

Managerial creativity along with professional growth has become a key element in the usefulness

of organizational efficiency at all levels of the organizational hierarchy. This creative behavior of principals creates interesting and useful processes, so that managerial creativity can be used as a process that is involved in solving exploratory applications. This process is carried out by a person who is able to find and develop solutions and imaginative designs that are not only strange but also useful for defining and achieving organizational goals in dynamic environments. In summary, managerial creativity refers to the relationship between mental ideas and various dimensions of different management practices (Prakash, 2011).

There are two types of leadership in schools: creativity in thinking and creativity in action. Creativity in leadership thinking refers to the leader's ability to create new data, new information and knowledge, and a new insight into the process of leadership thinking. Creativity in leadership action refers to the ability of leaders to create new applications of data, information, knowledge, and insights in the production of new leadership for school progress (Yin, 2010).

Management creativity has several types. This diversity of creativity can be attributed to factors such as change and innovation, sensitivity, problem solving skills, available resources, facilitation, trust and confidence, and emotional and interpersonal competence (Khandwalla, 2003).

a. Essence creativity: it refers to the form of new idea, concepts, principles, breakthroughs, and viewpoints. In management, it commonly takes the form of fresh, new core policies, strategies, value, and visions.

b. Elaborative creativity: if essence creativity is a compact form of creativity, elaborative creativity is the innovative amplification of a core idea principle. The difference is between staff empowerment as a core belief and its amplification into human resources policies, management, constructive aspects, training programs, and so forth.

c. Expressive creativity: no management is possible without expressive communication, and creative communication in turn is almost essential

in a wide range of activities like advertising and promotion, packaging, public relations, product design, interior décor, landscaping and architecture internal newsletters and so forth.

d. Existential creativity: it is about raising the quality of our existence, enlarging our consciousness, actualizing our potential, and growing and developing in ways that increasingly manifest our inherent humanity. Existential creativity in the organizational context can enable organizational members to pursue their growth, self-actualization, and noble yearnings so that they can recreate themselves and become unique human beings.

e. Entrepreneurial creativity: an organization can grow and compete through ventures. These ventures include diversification, acquisition, vertical integration, significant expansion, joint venture, penetration of new markets, significant projects, and significant launches of products, etc. Entrepreneurial creativity is related to the identifying and implementing innovative ventures. It is manifested when a diversifying organization invests on its core strengths while the diversification is unrelated to its core business.

f. Empowerment creativity: empowerment is about caring for people generally defined as others. Empowerment is enhancing the authority, influence, status, competencies, personality, growth, and development of others. In addition, creative empowerment involves creative and innovative ways of empowering others (Khandwalla, 2003).

Creativity in management is related to the ability to solve problems in an exceptionally competent and original way. Managerial creativity is described as the exploratory process of employing more than a mechanical approach in problem solving by a person who is open, curious and imaginative to find solution or designs that are novel and useful for the process of planning, organizing, implementing and controlling in order to determine and achieve the organizational objectives in a dynamic environment (Prakash, 2011).

Historically, creativity has been viewed as contradictory to rationality, and it subsequently involves the opposite of creativity to effective management. Today, management scholars believe in common that in rapid change and global competition, creativity is an essential characteristic of principals' success. However, despite the recognition of the managerial creativity importance, little research has been done in selecting principals with creative ability. It seems that most of the theoretical literature of creativity focuses on organizational audiences, which include teaching creativity techniques incorporating techniques such as lateral thinking. Management creativity is known as the production of concepts, ideas, methods, and guidelines by a manager who is useful to the organization (Henry, 1991).

Many researchers have found that there are many differences between the creative styles of principals. distinguished executives into two groups those who do things better and those who do things differently. Directors have also been divided into two groups of peers and separatist innovators. The first group seriously wants to maintain the status quo, but the second group wants to improve and structure restructuring. The proportional style of managerial creativity depends on the goals, conditions, and organizational culture as well as the environment in which the functional structure is formed. The divergent thinking test is often used to predict managerial creativity (Mumford, 2012).

Perhaps the most important systematic research on management creativity is Kurtson's research on, in which he believes in the difference between the two groups of principals: the implementers, the work of someone who is improving the things already in the system, and the innovators, those who have serious interventions in the system for making change. The comparison between innovators and implementers is likely lead to identifying influencers and searchers of change. Unmatched SEOs were identified as the riskiest individuals. Innovators have found that they are less biased and more flexible than adapters, and they also have a lot of patience in ambiguous situations and do not need to be structured.

Innovators have also realized that it is outsourcing (Scratchley & Hakstian, 2001).

In research conducted by Preeti in 2014, managerial creativity was investigated as a function of risky education discipline and its interaction with students from the faculties of science, management, and education, the results showed that the ordering of studying had a significant positive effect on managerial creativity. Moreover, it was found that the order of education did not have distinct risk behaviors and reciprocity.

In another study aimed at investigating the relationship between managerial creativity and teachers' motivation in relation to job self-efficacy, the results showed that there is a positive relationship between the two variables. One of the main reasons why teachers had job satisfaction was their interest in challenging and freely acting to improve their skills and abilities. It was also found that they were aware that responsibility, loyalty and tolerance are beneficial for their job prospects (Prakash, 2011). In research on Irish creative executives, it became clear that they were courage, firm, suspicious, contentious, power-hungry and uninterested in popularity and listening to conventional requests. These principals showed that they had curiosity, cognitive flexibility, independence of judiciary, and a strong sense of their fate (Barron, & Egan, 1968).

The results of the needy curriculum for school principals showed that male principals with university degrees had more creativity than other principals (Faizi, Chopani & Hayat, 2010). The relationship between leadership styles and creativity with the degree of effectiveness of university principals explained in the form of a research in which it was shown that the effectiveness of principals with leadership styles and creativity principals has a positive and significant relationship (Ameri & Et al, 2002).

The results of a study on the relationship between the philosophical mentality and creativity of high school principals in Isfahan indicated that there was a positive and significant relationship between philosophical mentality and creativity of principals. However, the demographic

characteristics of principals did not show a meaningful relationship with creativity and philosophical mentality (Saifhashemi & Rajaeepour, 2003). The effect of individual principals' attributes on their creativity in another study was also examined. The findings indicated that these attributes do not affect the creativity of the organizations' principals (Aslanlv et al, 2006).

In another study, the relationship between organizational structure and creativity of physical education principals was investigated. The findings revealed that there was a meaningful relationship between organizational structure and creativity of directors, but there was not a meaningful relationship between the complexity and creativity of head executives. Also, it was indicated that the relationship between formalization and concentration with creativity and the relationship between education and creativity were significant. Based on the findings of the study, the most important factors associated with reducing the creativity of the organization headquarters was the focus on personal decision-making rather than participation in decision making and the mismatch between occupations with discipline and education (Omidi & et al, 2007).

A Research aimed at designing and evaluating the causal model of creativity of school principals in Tehran, the results indicated that the creativity and innovation of Tehran school principals was moderate. It was also revealed that the effects of organizational culture variables, organizational climate, organizational learning and knowledge management on innovation and innovation were moderate and had the most and the least effect on innovation and creativity of principals. The researchers stated that in order to increase creativity and innovation in schools, it is necessary to strengthen the variables of organizational culture, organizational climate, organizational learning, and knowledge management (Niknami & et al, 2009).

In the study of the effect of individual and organizational factors on the creativity of Ardabil high school principals, the results indicated that individual and organizational factors affected the creativity of principals. Moreover, the findings

demonstrated that there was a significant relationship between individual factors, cognitive style and thinking style; and among organizational factors, leadership style, organizational structure, reward system in organization, and organizational climate had significant relationship with creativity. In addition, the results of multivariate regression analysis indicated that individual and organizational factors were a strong predictor of the creativity of high school principals (Pourtahmasi, Tajvr, & Syedkian, 2010).

Rezaei *et al* also examined the relationship between the pattern of intellectual and information technology with the creativity of high school principals of Zahedan. Their findings showed that the brain thinking model could predict the creativity. Furthermore, the results indicated that there was a positive and significant relationship between information technology and creativity of principals (Rezaei, Mirkamali & Atefi, 2011).

In another study, in order to investigate the relationship between the dimensions of the learning organization and the creativity of the high school principals, the findings showed that there was a significant relationship between the components of culture, personal ability, and common goal with the creativity of high school principals. It was also found that there was a significant relationship between creativity, age and service life (Shariatmadari & Tawangar, 2011).

Furthermore, in a study conducted by Heris, *et al.* (2011) the relationship between creativity of sports organization principals and organizational culture was investigated. The results of their study showed that all components of organizational culture had a positive and significant relationship with the creativity level of principals. Variable changes in creativity were influenced by 75.6% of the organizational culture variable. The findings also showed that there is no significant relationship between creativity and demographic characteristics of principals (gender, age, academic degree and management record).

The impact of individual factors on the creativity of high school principals in Shiraz has also been studied. The results revealed that

individual factors affect the creativity of school principals and it was indicated that these factors were a powerful predictor for principals' creativity (Sarchhany & Jahany, 2011).

Moreover, the relationship between the components of the learning organization and the creativity and innovation of high school teachers were investigated by Ghods and Abbaszadeh (2011). Findings showed that there was a positive and significant relationship between the learning organization and the creativity and innovation of teachers. There was also a significant positive correlation between the components of the learning organization and creativity and teacher's innovation. Team learning components and personal capabilities had the ability to predict the variables of creativity and innovation (Ehsani Ghods & Abbaszadeh, 2011).

In another research that aimed to investigate the relationship between creativity with the leadership style of principals and educational productivity in technical and vocational schools, the results demonstrated that there was a relationship between the components of leadership style of principals with the productivity of employees. No significant relationship between creativity of principals with employee productivity was found (Sehat & Khalaghi, 2012).

Shalley and Gilson (2004) investigated the role of leadership and practices in using human resources to improve the underlying factors of the work that supports creativity. They found that the factors of the field of work such as the nature of work, group and organizational levels can create or hinder the creativity of employees.

In another study that investigated the problems of high school principals in Tehran, a positive and significant relationship between evaluation, participatory decision making, desirable human relationships, facilities, creativity, and innovation of educational principals was found (Joibari, 2011).

To examine the difference between managerial creativity and job motivation in relation to the self-efficacy of high school teachers in Rashid (2012) conducted a study in which no significant difference in the managerial creativity of male and

female teachers in secondary schools was found. There was also no significant difference in the motivation of male and female teachers. However, a positive relationship between managerial creativity and teacher self-efficacy was found.

It seems that the principals of educational units still have not adequate knowledge and awareness of their creativity or at least do not use their creativity at all. Similarly, education professionals do not have enough precise information about the flexibility of principals with regard to guidelines and administrative regulations in terms of being creative. To this end, the present study was conducted in order to localize the concept of managerial creativity from the teachers' point of view, to identify the level of school principals' managerial creativity, and to examine the relationship between demographic variables and the level of managerial creativity of school principals.

1. Research Method

The present research was a quantitative study which adopted a positivist paradigm, because it relies on the application of statistical techniques in analysis, objective evaluation, and reliance on a sample. This quantitative research was carried out in the form of a developmental research design. In addition, genesis research involves applying research to questions that arise in the planning, execution, and performance of the programs. To start a program, some basic information is required. For example, the practitioners must be able to determine the skills that users must obtain. Principals typically arrange a special appraisal study to collect data about their specific concerns. The position evaluation, which is the first stage of the SIP model, was adopted for this research. This step involves identifying issues and needs that occur in a particular educational setting. Since the purpose of the research was to identify issues that are fundamental to the development of creativity programs, it could be considered as a sample of needs analysis method. In need-of-use, researchers typically use a sampling strategy and then scan members of the community (Gall, Borg & Gall, 2015).

2.1. Population and sampling

Selection of individuals and groups who are going to participate in the study is very important. Therefore, in the present study, the emphasis was on the decision-making guidance of the Sip Evaluation Approach. Therefore, it was important to identify at the beginning of the research the relevant individuals in the program because they can help the researcher in many aspects of the research, including the provision of reports. The ignorance of relevant people can make unpleasant consequences (Gall, Borg & Gall, 2015). The statistical population of this research was all high school principals in Sanandaj. Sampling from teachers in Sanandaj city was based on Morgan Table. Considering that the number of teachers was 1256, the selected sample obtained from the community of teachers was 296.

2.2. Tools

Since the evaluation of situation and doing needs analysis requires a measurement, the standard questionnaire for managerial creativity developed by Khandawalla (2003) was applied in the present study. The questionnaire consists of 8 components including the tendency to change and innovation, tacit sensitivity, competitive and reactionary spirit, problem solving skills, resources and equipment, guiding tasks, trust and confidence, and emotional and interpersonal competence.

It is important to note that, this research was conducted to compare the managerial creativity model from the viewpoint of the secretaries of the separate version. In order to obtain a fairly precise amount of managerial creativity from the viewpoint of their secretaries, six school administrators tried to complete a questionnaire for each school principal.

2.3. Reliability and validity

To assess the creativity of principals a questionnaire proposed by Khandawalla (2003) which is consisted of 8 components, including the tendency to change, innovation, tacit sensitivity,

competitive and resilient behavior, problem solving skills, resources, and equipment, guiding the execution of tasks, confidence and trust, and emotional and interpersonal competence was used. When a language testing tool is translated into another language, the properties and quality of its measurement in terms of validity and reliability should be examined. To validate the questionnaire, a confirmatory factor analysis was used in Lisrel software. The results indicated that the model proposed by Khandawalla in the Iranian community was not approved. If the number of questions of a tool is high, in other words, if the model is large, it is impossible for the model to have satisfactory fit with the data and to be verified. In addition, the method used by Condolea is a qualitative method for identifying the components of managerial creativity and the components of these components, while the method used in this study was a quantitative method for assessing managerial creativity from teachers and principals' point of view.

One of the reasons that this model has not been validated yet in Iranian society is the variety of methods. Moreover, one of the reasons for the difference between the confirmatory factor analysis of the present research and the characteristics of the sample group, sample size, age range, teaching history, field of study, etc., were compared with the by Khandawalla (2003) research. Due to the lack of confirmation of the initial model, an exploratory factor analysis was used in the study to extract new factors. The results are presented from the teachers' point of view to assess the managerial creativity.

2. Results And Discussion

The KMO test was used in the study to determine whether data related to managerial creativity scale can be reduced to several factors. Bartlett's test was also used to find out how the matrix of correlations between points was used. In Table 2 the results of these two tests are presented.

Table 2. KMO test and Bartlett test results

Bartlett	f	ig.	KMO
6974.6	780	0.0	0.962

The KMO value (0.962) in Table 2 shows that research data can be deducted from the underlying factors. The result of the Bartlett test (6974.6) also indicates that the statistic was significant at an error level of less than 0.1. It demonstrates that the correlation matrix between the terms was a unit matrix. On the one hand, the findings reveal that there were correlations between the terms within each factor, and on the other hand no correlations between the terms of an agent with other factors were found.

In the next step, the classification of items among agents is shown in Table 3 (in appendix) based on their factor loading and exploratory factor analysis. The results show that in the managerial creativity assessment scale of the principals, the correlation of each item with each factor is not less than 40.0. Of the 40 items, no items related to the six factors of the scale were eliminated. The values of the agents of one to six are all greater than the value of one. The first factor (diagnosis and realization), with a special value (6.44), accounts for about 13.13% of the total variance, which has the highest participation in explaining the variance of the above scale, and the sixth factor (self-efficacy) with the special amount of 1.47 defines 2.71% of the total variance, which has the lowest participation in the explanation of variance. In this analysis, factors explain 60.59% of the total variance. The finalized factors are named according to the content, meaning and direction of the correlation of the factor loading that the

propositions had with each of the factors. In other words, the main meaning in the statements that have the most factors loading on one factor, was the main basis for the name of the agent.

By examining the model obtained from the exploratory analysis, all six revalued factors were reaffirmed. In the confirmatory factor analysis, the relative size of the chi-square should be considered by dividing the degree of freedom and fitting the basic indices in the analyses. These indicators include 4 relative fit indices and 2 absolute fit indices. Absolute fit indices of RMSEA and SRMR are reported to examine the relationship between the variance of covariance matrix of data. Relative fit indices indicate that the model is in agreement with the optimal model and there are reported CFI, GFI, IFI, NFI indices. The higher the sample size, the higher the chi-square value can be. Since the results are insignificant for the confirmation of the factors, it is clear that there is no significant difference between the obtained model and the optimal model if the obtained χ^2 value is not significant. Studies have shown that for SRMR and RMSEA, the value of 0.8 and less than good, and 0.6 is less than that. In the case of relative indices, the value is 0.9 and higher [41]. Table 4 shows the results of a confirmatory factor analysis for principals' managerial creativity assessment scale from the viewpoint of teachers.

Table 4. Results of the confirmative factor analysis

χ^2	df	RMSEA	CFI	GFI	IFI	NFI
1376.22	725	0.28	0.98	0.81	0.98	0.97

The χ^2 value for this model is 1376.22 for the degree of freedom 725, which is statistically significant ($p = 0.0$). The GFI index in this model is 0.81, which indicates a good fit of the model with data. Additionally, (RMSEA) is 0.28. Because this value is less than 0.5, it can be concluded that the

degree of model approximation is not large in society. Also, the results of other indicators show good fit of the model. Based on the results, it can be concluded that the above questionnaire has a good validity.

Reliability: Cronbach's alpha coefficient was used to determine the reliability of the questionnaire. Table 5 shows the reliability of the inventory factors of the questionnaire.

Table 5. Results of the Alpha coefficient of the managerial creativity assessment questionnaire

Row	Agents	Number of items	Alpha
1	Independence	4	0.730
2	Efficacy	3	0.836
3	Accountability and Capacity	6	0.860
4	The desire to innovate and change	7	0.865
5	Understanding the feelings and motives of others	9	0.905
6	Detection and realization	11	0.926
7	Total questionnaire	40	0.85

As shown in Table 5, Cronbach's 's alpha coefficient had the least independent factor of independence with 0.730, and diagnosis and realization factor with the value of 0.926 had the highest amount of Cronbach's 's alpha coefficient in the management creativity assessment questionnaire. According to the empirical rule, the alpha coefficient should be at least 0.7, so that the scale can be considered as robust (Dewas, 2007).

So, according to the obtained coefficients, it can be concluded that the questionnaire has a highly desirable reliability.

In this section, we used statistical tests to study the relationships between variables and test the hypotheses. First, the Kolmogorov-Smirnov test was applied to test the normality of the dependent variable, the results of which are shown in Table 6.

Table 6. Results of data distribution study using Kolmogorov-Smirnov test

Sub-scales	M	SD	Absolute	Positive	Negative	Z	Sig.
Independence	3.98	0.72	0.274	0.254	0.274	0.274	0.55
Efficacy	4.11	0.75	0.243	0.233	0.243	0.243	0.08
Accountability and Capacity	4.14	0.70	0.261	0.261	0.253	0.261	0.08
The desire to innovate and change	4.11	0.73	0.254	0.246	0.254	0.254	0.03
Understanding the feeling and motivation	3.72	0.95	0.268	0.188	0.268	0.268	0.09
Detection and realization	3.94	0.69	0.289	0.268	0.289	0.289	0.14

As shown in Table 6, Z values for Kolmogorov-Smirnov test for all components are not significant ($p = 0.555$). Therefore, normal distribution and parametric tests can be used. Table 7 shows that X^2 values in all of the above components are significant and the teachers have evaluated the level of creativity of principals in all its components at high levels. The difference between the number of frequencies between the high and low levels of

teachers' evaluation confirms this. In the next step, it will show the results of teachers' evaluation of creativity level of school principals based on the demographic variables of teachers.

Table 7. The Results of assessment of managerial creativity from teachers' point of view using Chi-Square test

Sub-scales	Frequency		X ²	Sig.
	Up	Down		
Independence	291	5	276.33	0.000
Efficacy	291	5	276.33	0.000
Accountability and Capacity	285	11	284.12	0.000
Desire to innovate and change	291	5	276.33	0.000
Understanding the feeling and motivation	266	30	188.66	0.000
Detection and realization	275	21	284.12	0.000
Management creativity	280	16	284.12	0.000

2.1. Comparison of managerial creativity based on the academic discipline of the teachers

It should be noted that the participating teachers in the evaluation of the principals' creativity were divided into two independent groups of humanities and non-humanities in their field of study. Concerning the normal distribution of the dependent variable, a suitable test was used to measure the relationship between these two variables of t-test with two independent samples. Table 6 shows the comparison of managerial

creativity of respondent principals according to the degree of contributing teachers.

As shown in Table 8, the significant level of t-values for all components of managerial creativity was more than 0.05 level. The average column shows that although the average of all components of managerial creativity varies according to the field of study of the responding teachers, this difference is not statistically significant. In other words, the field of study of teachers has not had any effect on how to assess the creativity of principals.

Table 8. Comparison of managerial creativity based on the academic discipline of the respondents

Sub-scales	<i>M</i>		T-value	df	Sig.
	Humanities (N=151)	other fields (N=145)			
Detection and realization	4.02	3.95	0.225	294	0.329
Understanding the feeling and motivation	4.12	4.04	0.946	294	0.287
The desire to innovate and change	4.1	3.96	0.034	294	0.073
Responsibility and Capability	4.1	4.06	0.172	294	0.633
Efficacy	3.64	3.79	0.303	294	0.141
Independence	3.82	3.8	0.233	294	0.73
Managerial Creativity (Total)	4.02	3.96	1.303	294	0.394

2.2. Comparing the assessment of managerial creativity based on the respondents' degree.

Given that the participant sample in the research was selected from among high schools, they all had

the minimum degree of bachelor's degree. Graduates were divided into two groups of independent undergraduate and postgraduate degrees and higher. The results of t-test with two independent samples are shown in Table 9.

Table 9. Comparison of managerial creativity based on the respondents' academic degree

Factor	mean		T value	df	Sig.
	Masters(N=230)	MA (N= 66)			
Detection and realization	4.01	3.86	6.402	294	0.107
Understanding the feeling and motivation	4.11	3.95	0.121	294	0.100
Desire to innovate and change	4.07	3.86	5.622	294	0.02
Responsibility and Capability	4.09	4.04	1.66	294	0.577
Efficacy	3.73	3.60	0.151	294	0.319
Independence	3.84	3.69	3.9	294	0.137
Management creativity	4.02	3.87	4.786	294	0.083

As shown in Table 9, the significant level of t-values for all components of principals' managerial creativity (except the component of the tendency to change and innovation) was

greater than 0.05. The average column shows that although the average of all components of managerial creativity varies according to the level respondent teachers' degree, this difference is statistically significant except for one case in the other cases. In other words, the level of teacher education has no effect on the way in which principals are evaluated. The only exception was in the assessment of undergraduate postgraduates that gave principals an incentive to innovate and change their grades.

2.3. Comparison of principals' managerial creativity assessment based on the teachers' gender

Table 10 shows the results the comparison of principals' managerial creativity based on gender. As shown in Table 10, the significant level of T for

all of the components of managerial creativity (except for the component of recognition and realization, and tendency to change and innovation) was greater than 0.05. The average column shows that although the average of all components is different between principals' managerial creativity and the gender of respondent teachers, this difference is statistically significant except for two items. In other words, gender has no effect on how principals evaluate creativity. The only exception was in the assessment of the female secretaries who gave the principals the opportunity to discuss the diagnosis and realization, and the tendency to innovate and change the score.

Table 10. Comparison of principals' managerial creativity based on their gender

Factor	M		t. value	df	Sig.
	F(N=147)	M (N=145)			
Detection and realization	4.06	3.9	1.188	294	0.031
Understanding the feeling and motivation	4.14	4.02	0.053	294	0.128
Desire to innovate and change	4.1	3.95	0.016	294	0.035
Responsibility and Capability	4.13	4.04	0.190	294	0.205
Efficacy	3.71	3.71	1.117	294	0.987
Independence	3.88	3.74	4.396	294	0.055
Management creativity	4.05	3.93	0.090	294	0.056

2.4. Comparing managerial creativity based on work experience

An appropriate test for measuring the relationship between these two variables is one-way analysis of variance analysis. Table 11 shows the average level of managerial creativity in terms of work experience. The table presents the significant level of F values for all components of managerial creativity (excluding the self-efficacy component) was more than 0.05. The average column shows that although the average of all

components of managerial creativity varies according to the level of respondent teachers' degree, this difference is not statistically significant except in one case. In other words, the work record of the secretaries has no effect on how principals evaluate creativity. The only exception to the assessment is for middle school teachers (11 to 20 years) that gave principals a higher score on self-efficacy topics.

Table 11. Comparison of managerial creativity based on the teachers' work record using ANOVA

Factors	M			F	df	Sig.
	1-10 (N=24)	11-20 (N=129)	21-30 (N=143)			
Detection and realization	4	4	3.96	0.127	293	0.881
Understanding the feeling and motivation	4.16	4.09	4.06	0.280	293	0.756
Desire to innovate and change	4	4.03	4.03	0.020	293	0.98
Responsibility and Capability	3.99	4.07	4.1	0.365	293	0.695
Efficacy	3.37	3.84	3.65	3.627*	293	0.028
Independence	3.75	3.85	3.78	0.524	293	0.593
Management creativity	3.96	4.01	3.98	0.145	293	0.865

3. Conclusion

The review of the Literature review showed that despite the importance of the managerial creativity, there are few studies on the characteristics of creative principals or choosing the principals with creative ability. It seems that most theoretical literature of creativity focuses on organizational audiences teaching creativity that incorporates techniques such as lateral thinking. Management creativity is known as the production of concepts, ideas, methods, and guidelines by a manager who is useful to the organization. Researchers believe that creativity should not be distinguished from other human capabilities structures. Although it is difficult to measure creativity in differentiating from other implicit and psychological variables, it must be measured in the social context of these structures (Lopez & Snyder, 2004). Since the theoretical foundations have shown that there are two types of creativity (in thinking and in action) in school leadership, this research was designed with a quantitative approach to assess creativity in the

school principals' leadership from the teachers' perspectives. The practical creativity of executives refers to the leaders' ability to create new applications of data, information, knowledge and insight into the production of new leadership for school progress.

The first and most important finding of this study was that the managerial creativity assessment scale can be used as an effective and lasting tool in the research of educational researchers among Iranian school principals.

The results of the present study indicated that the collaborators involved in the research assessed the managerial creativity assessment scale of school principals in all aspects of managerial creativity at a high level. Of course, as expected, it may be part of the results obtained from the assessment of biased teachers for a number of reasons. First, the secretaries working in each school are often concerned about the results of the questionnaire and the assessments filled by them by the school administrators, and so they are subject to

a variety of errors to be evaluated and allocate to high performance principals. In addition, given that this research is somewhat included in research surveys, it could be influenced by the curiosity of contributors to the research and led to Hawthorne's error. Another factor that may affect the results of this research is the novelty of the managerial creativity concepts for teachers and the inadequacy of the concept of acquiring creativity because public belief is that attribute creativity is inherent and untraceable and it cannot be examined in everyone.

Other results of the research showed that the analysis did not show the relationship between the demographic variables of the teachers and the average evaluation scores made by them. In other words, gender, field, degree, and even record, could not be correlated with the type of assessment carried out by the teachers. However, in some components, there are some exceptions that cannot be mentioned and other components cannot be generalized. One of the reasons for this may be the inaccuracy of the teachers in completing the questionnaire, and in particular the incorrect presentation of the information about their demographic variables for anonymity that is a problem with quantitative research and surveying.

Perhaps the most important references to the results of this study are that the implementation of this questionnaire and the publication of the results of the teachers' evaluation of their principals at least can promote the managerial creativity components among school administrators and administrators who are volunteering managerial positions in schools have contributed as an important attribute. Because principals can operate their potential managerial creativity in the best possible way, so that their intrinsic creativity applies to new strategies and policies, that their manager is an independent decision maker, his decisions are always in line with the decisions of the authorities, they should be able to decide within them too. Use creative creativity to create ideas and principles so that he himself is the creator of a training system and can express these ideas and policies to his entire field of work. Use its

existential creativity to continuously improve its subordinates' awareness and help them grow economically and scientifically with entrepreneurial creativity. A school principal can compensate for the economic constraints that are currently affecting our educational system. Finally, by empowering creativity, it will enhance the ability of its staff and students to be accountable. Just as a teacher who can at least be a manager with the ability to make strategic decisions in his class.

However, policy analysts and executives can use the information obtained from the assessments to prepare a status report for the implementation of programs, and the discussion of the generalizability of the high results is not taken into account so much. However, based on the results of the research for better and deeper understanding of each of the obtained components, it is suggested that future studies be conducted individually using the qualitative research method in other educational levels and in the university contexts.

Educational handlers can use the results of this assessment to shape creative behaviors among employees or change their attitudes to creativity. In the special workshops and special events of the teachers, school administrators and administrative staff of educational institutions, it is argued that creativity does not necessarily relate to the level of education, teaching experience, and discipline. It is believed that creativity can be acquired. The discussion of creativity, according to its nature, implies unknown aspects and it may bring with itself some risks. It may not provide satisfactory results with respect to the amounts invested in creative education programs. However, a lack of investment in creating may lead to a failure of the organization.

Acknowledgments:

The authors consider it necessary and express their sincere gratitude to the Department of Education and The educational managers of Sanandaj city who helped us to do it and improve the quality of this research.

Ethical considerations

During the implementation of this research and the preparation of the article, all national laws and

principles of professional ethics related to the subject of research, including the rights of statistical community, organizations and institutions, as well as authors and writers have been observed. Adherence to the principles of research ethics in the present study was observed and consent forms were consciously completed by all statistical community.

Sponsorship

The present study was funded by the authors of the article.

Conflict of interest

According to the authors of the present article, there was no conflict of interest.

This article has not been previously published in any journal, whether domestic or foreign, and has been sent to the Journal of School Administration Quarterly for review and publication only.

References

- Alvani, M. (2006). *"General management"*. Tehran: Nay Publishing, 20th Ed".
- Ameri, H., KozehChian, H., Azar, A., & Ehsani, M. (2002). The relationship between leadership style and creativity with the effectiveness of directors of physical education and sport science universities affiliated to the Ministry of Science. *Research and Technology. Journal of motion*, 83, 123-141.
- Aslanlv, P., Asadi, H., Goudarzi, M., & Kazemnejad, A. (2006). Effect relationship between the characteristics of individual principals of Physical Education Organization and the Ministry of Science. *Research and Technology on creativity and conflict management. Quarterly move*, 30, 41-29.
- Barron, F., & Egan, D. (1968). Leaders and innovators in Irish management. *Journal of management Studies*, 5, 41-60
- Csikszentmihalyi, M. (1996). *Implications of a systems perspective for the study of creativity*. New York: Cambridge University Press.
- Dessler, G. (2013). *Human resource management*. Pearson education, Inc., publishing as prentice hall.
- Dewas, D. (2007). *Surveys in social research, translation Hushang Nayebi*. Tehran: Nay Pub. 18th Edition.
- Ehsani Ghods, H. S., & Abbaszadeh, M. M. (2011). The relationship between creativity and innovation components of a learning organization with teachers in high schools and colleges. *New approach in Educational Administration Quarterly*, 3(4), 1-20.
- Faizi, M., Chopani, H., & Hayat, A. (2010). The relationship between the management styles of principals on the creativity of teachers, school in the city of Sanandaj. *Journal of Educational Leadership and Management*, 3, 123-103.
- Gall, M., Borg, W., & Gall, J. (2015). *Qualitative and Quantitative Research Methods in Educational Sciences and Psychology*, Translation: Ahmad Reza Nasr. Tehran: Samt Pub.
- Goertzel, V., & Goertzel, M. G. (1976). *Cradles of eminence*. Boston, MA: Little, Brown.
- Henry, J. (1991). *Introduction creative management*. London: sage.
- James, C., K, R., & Sternberg, J. (2010). *The Cambridge handbook of creativity*. London: Cambridge University Press.
- Joibari, A. (2011). The Study of High Schools Principals' Problems in Tehran City. *International Conference on Education and Educational Psychology, Social and Behavioral Sciences*, Islamic Azad University, Roudehen, Iran.
- Khandwalla, N. P. (2003). *Corporate creativity: the winning edge*. Tata McGraw-Hill Pub. New Delhi.
- Lopez, S. J., & Snyder, C. R. (2004). *Positive psychological assessment: A handbook of models and measures*. Washington, DC, US: American Psychological Association.
- Mednick, S. A. (1962). The associative basis of the creative process. *Psychological review*, 69, 220-232.
- Mumford, M. (2012). *Handbook of*

organizational creativity. Elsevier Inc.

Newell, A., & Simon, H. A. (1972). *Human problem solving*. Englewood cliffs, NJ: Prentice Hall.

Niknami, M., Taqi Pour Zahir. A., Delaware, A., & Ghaffari, M. (2009). Design and evaluation of educational administrators in Tehran causal model of creativity and innovation. *New approach in the Journal of Educational Administration*, University of Shiraz, 5, 1-28

Omidi, A., Hamidi, M., Khabiri, M., & Safari, S. (2007). The relationship between structure and creativity principals of Physical Education Organization. *Quarterly move*, 33, 117-105.

Perkins, D. N. (1981). *The mind's best work*. Cambridge, MA: Harvard University press.

Petrie, N. (2014). *Future Trends in Leadership Development*. Center for Creative Leadership.

Pirkhaefi, A. (2005). *Creativity (basics and methods of training)*. Tehran: Phoenix Millennium.

Pourtahmasi, S., Tajvr, A., & Syedkklan, S. (2010). Relationship between individual and organizational factors and creativity of high school principals' city of Ardebil. *Journal of ingenuity in science*. 1, 22-40.

Prakash, C. J. (2011). Managerial creativity and work motivation of secondary school tribal teachers in relation to their occupational self-efficacy. *International journal of research in commerce management*. 2 (10) 26-40.

Preeti, W. (2014). Managerial creativity as a function of discipline of study and risk-taking behavior and their interaction. *AIMA Journal of Management & Research*, 8, 1-4.

Rahnma, A., Byjnvnd, F., & Aliyari, M. (2011). Review and explanation of the philosophical foundations of creativity in terms of its application in teaching methods. *Third National Conference on Education, Teacher Training University Shahid Rajai*, 28 -29.

Rashid, F. (2012). Managerial creativity and work motivation of secondary school tribal teachers in relation to their occupational self-efficacy. *IOSR*

Journal of humanities and social science (JHSS), 3, 53-60.

Rezaei, A., Mirkamali, M., & Atefi, S. (2011). The Relationship between the interests of executives with creative thinking and information technology education in secondary schools in Zahedan. *Third National Conference on Education, Teacher Training University Shahid Rajai*, 28 -29.

Runco, M. A. (2007). Creativity, Research, Development, and practice. *Journal Cognitive and creativity*, 15, 1-38

Saifhashemi, F., & Rajaeepour, S. (2003). Explore the relation between philosophical mindset and creativity of high school principals in Isfahan. *Journal of Physical Education*, 77, 32-64

Sarchhany, Z., & Jahany, J. (2011). The effect of individual factors on the creativity of high school principals in Shiraz. *New approach in the Journal of Educational Administration*, 5, 51-70.

Scratchley, L. S., & Hakstian, A. R. (2001). The measurement and prediction of managerial creativity. *Creativity Research Journal*, 13, 367-384.

Sehat, A., & Khalaghi A. (2012). The relationship between creativity and leadership style with training in technical schools and professional productivity. *Journal of Technology of Education*, the sixth, 6(4), 317-327

Shaikh Alizadeh, H., Tejary, M., & Pyralaei, F. (2011). Estimates of creative organizational culture in the management of sports organizations. *Journal of Sports Management*, 11, 99-117.

Shalley, E., & Gilson, L. (2004). What leaders need to know: A review of social and contextual factors that can foster or hinder creativity?. *The Leadership Quarterly* 15, 33-53.

Shariatmadari, M., & Tawangar, A. (2011). Relationship between learning organization and creativity of high school principals in Semnan province. *Journal of Educational Leadership and Management*, 1, 77-93

Sternberg, R. J. (2010). *The nature of creativity*. Cambridge University Press.

Styhre, A., & Sundgren, M. (2005). *Managing creativity in organizations: Critique and practices*. New York: Palgrave Macmillan

Sustainable Development. The Hong Kong Institute of Education, China

Yin C. (2010). *Multiple Thinking and Creativity in School Leadership: A new Paradigm for*

Appendix

The results of exploratory factor analysis of the principals 'creativity assessment questionnaire from teachers' point of view

Factor	Items	Descriptive Statistics		Factor load	special amount	% Variance explained	% Cumulative variance
		M	SD				
Diagnosis and Realism	He/she recognizes the structure of organizational power quickly.	4.28	0.75	0.75			
	He/she has the skill to do the right things at the right time	3.94	0.55	0.55			
	He/she thinks of different solutions before testing each one.	3.86	0.52	0.52			
	While encountering problems, he/she uses new or unusual solutions.	3.77	0.41	0.41			
	He/she can feel the problem before the staff.	3.88	0.67	0.67			
	He/she satisfies the demands in stressful condition.	4.08	0.62	0.62	6.44	43.13	43.13
	In case of changing job environment, he/she adapts himself immediately.	4.20	0.57	0.57			
	He/she can predict the best way to obtain results before others.	4.05	0.58	0.58			
	Quickly recognizes the organizations do's and don'ts.	4.12	0.56	0.56			
	Before making a decision, he/she thinks of all the resources and alternative ways.	3.97	0.52	0.52			
	He/she is curious to understand what's happening around him.	4.12	0.58	0.58			
	He/she realizes who needs support in facing emotional pressure.	4.02	0.49	0.49			
	He/she is able to encourage others to do hard works by his/her eager.	4.08	0.52	0.52			
	He/she is a patient listener and doesn't judge before understanding what his/her audience is saying.	4.28	0.48	0.48			
Understanding the feelings, motivations and contributions of others	Provides a true picture of his thoughts and feelings to others.	3.84	0.70	0.70			
	He/she understands his/her subordinates' feeling and morals.	4.08	0.63	0.63	5.42	4.519	47.67
	In the work environment, he asks his colleagues to submit suggestions.	3.52	0.61	0.61			
	He/she can determine the big goals and encourage others to achieve them.	3.91	0.47	0.47			
	He/she has a direct, friendly and open relationship with most of his/her colleagues.	3.8	0.69	0.69			
	He/she is comfortable with the people of his colleagues and enjoys a close relationship.	4.0	0.72	0.72			
	He/she likes to keep in touch with advancement and innovation opportunities in the educational organization.	4.02	0.64	0.64	4.22	3.66	51.32

The desire to innovate and change	He/she attracts the influential individuals' opinions in the organization in order to support innovative ideas.	4.08	0.66	0.66			
	He/she makes relationship with informed people who make purposeful progress in the school.	4.28	0.65	0.65			
	He/she identifies the process of new designs simply and quickly.	3.84	0.60	0.60			
	He/she wants to propose innovative solutions to the problems while doing work.	4.08	0.52	0.52			
	He can perform tasks efficiently.	3.52	0.48	0.48			
	He/she doesn't tend to traditional solutions to solve problems	3.9	0.64	0.64			
	He/she can accept the criticisms and positive aspects of work failures.	3.89	0.58	0.58			
	He is not discouraged in the bottlenecks and he is quickly looking for a way out.	4.0	0.71	0.71			
	Take care of all the steps involved in designing work-related solutions.	3.8	0.64	0.64			
	Accepts the responsibility for pursuing the work done.	3.9	0.67	0.67			
Accountability and Capacity	He is struggling with difficulty and does not escape.	4.0	0.59	0.59			
	He takes the mistakes and gives guidance to others.	3.54	0.47	0.47			
	Conveys his ideas clearly and persuasively to others.	4.02	0.78	0.78			
	It is inclined to pursue the immediate and immediate goals of his growth.	3.91	0.55	0.55			
	He wants to be at the forefront and everything that matters is important.	3.92	0.82	0.82			
Independence	He likes to take on new tasks in a modern environment with new people.	3.64	0.49	0.49			
	The mobilization skills have the risky and necessary resources to perform.	4.06	0.77	0.77			
	If confronted with difficult decisions, it will not be confused.	4.06	0.81	0.81			
Efficacy	In the presence of top officials, he will not be afraid.	3.94	0.85	0.85			

Introducing The Authors

Author 1 Name: Naser Shirbagi

Email: Nshirbagi@uok.ac.ir

Faculty Member, Professor of Educational Management, Department of Educational Sciences, Faculty of Humanities and Social Sciences, University of Kurdistan, Kurdistan, Iran.



Author 2 Name: Amjad Kazemi

Email: amjad.kazemi@yahoo.com

PhD in Educational Management, Department of Educational Sciences, Faculty of Humanities and Social Sciences, University of Kurdistan, Kurdistan, Iran.

