Karsantık, İ. (2021). Teachers' perceptions of readiness for change and innovation management in their schools. *International Online Journal of Education and Teaching (IOJET), 8*(1). 261-287.

Received : 25.10.2020
Revised version received : 27.11.2020
Accepted : 30.11.2020

TEACHERS' PERCEPTIONS OF READINESS FOR CHANGE AND INNOVATION MANAGEMENT IN THEIR SCHOOLS

Research article

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Abstract

The purpose of the study was to describe teachers' readiness for change and teachers' perceptions of innovation management in their schools as well as to analyze the relationship between them. The study adopted survey model of the descriptive research design. The participants were composed of 104 primary school teachers who were selected using convenient sampling method in Zeytinburnu district of Istanbul in 2019-2020 school year. The data were collected via 'Readiness for Change Scale' developed by Kondakçı, Zayim and Çalışkan (2013), and 'Scale for Innovation Management at School' developed by Bülbül (2012). In the analysis of the obtained data, quantitative data analysis techniques were utilized. The results revealed that the participant teachers' perceptions of readiness for innovation in terms of the functioning of change and innovation process were positive, and these perceptions of readiness were depended on school administrators' abilities of innovation management. As a consequence, it was recommended that school administrators develop themselves in terms of those matters.

Keywords: Teacher perception, organizational change, innovation management, readiness for change

1. Introduction

There has been an ongoing change in such areas as social, cultural, economic and technological implications in life. Considering the pace and importance, change is also needed in every educational organization in order to keep up with advancements regarding educational practices. Administrators, therefore, aim to ensure the existence of the organization by constantly providing changes that meet the needs and adapt to the environment (Güçlü & Şehitoğlu, 2006, p. 240). When the change that comes into play with external or internal dynamics is classified, it might be said that about changes in structure, technology, and people (Robbins & Coulter, 2016, p. 200). Changes related to the structure include authority relations, coordination of mechanisms, redesign of work and control area; technological changes include business processes, business methods and hardware and changes regarding people are counted as attitudes, expectations, perceptions and behaviors (Robbins & Coulter, 2016, p. 200). These changes in the organization might be thought to be developing in an environment-related manner and have been accelerated with globalization. Depending on the situation, it can be said that the survival of organizations depends on their dynamism.

Innovation might be included in the process of change intertwined with globalization. In this sense, innovation management has different dimensions (Adams, Bessant & Phelps, 2006). In order to ensure the management of innovation Göl and Bülbül (2012, p. 98) mention four dimensions: input management, innovation strategy, organizational culture and structure and project management. It is emphasized that the input management consists of human, financial and physical resources. The innovation strategy includes the role of innovation, the use of technology, management of performance improvement (Çetin, Erol ve Karaduman, 2017), and solution of problems in the innovation process. Additionally, organizational culture includes openness in terms of organizational climate and structure. Finally, project management includes project selection, implementation, and evaluation. The organization is expected to be

ready for change so that the manager can ensure innovation in the organization. Göl and Bülbül (2012) emphasize three dimensions regarding readiness for innovation: intention, cognitive and affective. Intention dimension includes adoption to change and achieving it while cognitive dimension refers to perceiving change as refreshing and useful. Finally, affective dimension includes negative emotions and anxiety.

2. Change and Innovation

Change is the differentiation of something in a certain period of time (Erdoğan, 2002, p. 9). Demirtaş (2012, p. 19) defines change as a constant part of societies and phenomenon affecting development, innovation, reform, and people. Innovation is knowledge-based product, service, technological advancement and sharing of process-oriented information (Göl & Bülbül, 2012, s. 98). Damanpour (1987, p. 676) defines innovation as a means of change in the structure, processes and outputs of an organization which help adaption to society.

Although change and innovation are similar, they actually have different content and functions. While change occurs as planned or unplanned, innovation proceeds in a planned way. Change is bi-directional which has positive and negative side, and its positive side is continuous involving innovation and development. Innovation is a form of discontinuous change. Therefore, all innovations made in the organizational sense are the product of change. However, it cannot be said that change is always regarded as innovation (Osborne & Brown, 2005).

2.1. Change and Innovation Process

Initiating change process neither indicates implementing it successfully nor ensures its sustainability. In the process of change proposed by Levin (1998), the current situation must be resolved. Robbins and Coulter (2016) state that the way to achieve this is to increase the driving forces that direct the behaviors away from the current situation. Thereafter, it is necessary to move to the new state, by reducing the limiting forces that stemming from the current situation and prevent advancement. Finally, it is needed to make change sustainable. For this reason, combining the first two steps, namely balancing the driving, and limiting forces is necessary (Robbins & Coulter, 2016, p. 203). Thus, effective change is achieved in the organization.

Initiation of the innovation process depends on the need for it. Necessity of innovation is mostly determined according to the problem experienced by the organization (Top, 2011). Drucker (2004, p. 70) indicates innovation process in several stages. Firstly, ideas are created based on the needs identified and resources available. Secondly, analyzes are performed for expenditure in the process of innovation. In order to adopt innovation, organization employees are informed about innovation. During the implementation of innovation plan, measurements are made and the state of adoption and creating a value is followed, and reorganizations are performed in order to establish innovation by taking the measurement results into consideration.

Factors regarding resistance to change and innovation include uncertainty, anxieties toward personal or organizational loss, habits, and individuals that are not ready for change and innovation (Robbins & Coulter, 2016, p. 206; Demirtaş, 2012, p. 22; Robbins, 1990, p 456). The solutions to eliminate this situation is seen as ensuring that the individuals of the organization participate in the decision making process regarding change and innovation, informing about the process and giving feedback about the implementation of innovation plan, strengthening the communication in the process of change and innovation, and honoring those who strive for the healthy progress of this process (Robbins & Coulter, 2016, p. 206).

2.2. Change and Innovation in Schools

Education becomes dysfunctional when there is no change according to need of time (Erdoğan, 2002, p. 7). To sustain advancements in terms of the future of the country and society, educational institutions should be open to change and innovation processes, as the education creates inputs for other organizations. Individuals and institutions can benefit from models developed for the healthy functioning of change in educational organizations (Güçlü & Şehitoğlu, 2006, p. 250-251). Adams and Spencer (1988) propose one of these models called personal change model. Consisting of seven stages, personal change model includes supporting change and innovation in order to eliminate the problems in the system and recover individuals and organizations from major changes.

1. Destabilizing and losing focus: Change begins with the loss of existing balance and brings uncertainty.
2. Minimizing the impact: Reducing the negative impact of uncertainty that starts with change on individuals. In particular, the negative impact on those who prefer to go back and maintain previous practices should be reduced.
3. Questioning self-worth: People begin to question themselves with the effect of change. As the self-questioning progress, uncertainties due to change decrease.
4. Letting go of the past: For effective progress in change, it is required that both changes should be accepted and previous practices should be abandoned.
5. Testing the new situation: Innovation that comes with change brings emotions such as enthusiasm, as well as evaluating new practices.
6. Searching for meaning: Practitioners of change try to understand the benefits this process for them, their relationships and professions.
7. Integrating the experience: Individuals implement innovation with the effect of change on themselves.

As seen in personal change model, in terms of educational institutions, the teachers' readiness for change is considered important for the effective functioning of the process. While the readiness that constitutes the first step of change depends on the information and guidance of school administrators, it also prevents the resistance against change by adoption of it (Self & Schraeder, 2009, p. 173). In addition, adopting to change both facilitates the change process and ensures achieving it successfully and permanently (Kondakçı, Zayim & Çalışkan, 2010, p. 159). The competencies of school administrators in innovation management are also considered important in ensuring the sustainability of innovation in schools. As methods of supporting and encouraging innovations may not be sufficient, school administrators should also have innovation management competencies, to ensure the adoption and implementation of it. These competencies also enable to benefit from innovation effectively (Göl & Bülbül, 2012, p. 98-99). Based on this framework, the purpose of the research is to reveal the relationship between teachers' perceptions about the readiness of change and the school administrators' innovation management competencies. To this end, following research questions were addressed:

1. Does teachers' readiness for change differ significantly in terms of gender, type of institution, duration of employment in the current institution, years of experience in the profession and degree of education?

2. Do teachers' perceptions of innovation management differ significantly in terms of gender, type of institution, duration of employment in the current institution, years of experience in the profession, and degree of education?

3. Is there a significant relationship between teachers' readiness for change and the school administrators' perception of innovation management?

3. Method

In the study, descriptive research design and survey method were used. Since the relationship between the teachers' readiness for change and the perceptions of teachers about the school administrators' ability to manage innovation were aimed to examine, the study was designed through correlational model based on quantitative data. Correlational models are used to reveal the relationship between two or more variables (Christensen, Johnson & Turner, 2011). In the study, gender, type of institution, duration of employment in the current institution, years of experience in the profession and degree of education were considered as independent variables while teachers' readiness for change and the perceptions of teachers about the school administrators' ability to manage innovation were dependent variables.

3.1. Participants

The main participants of the study were 104 primary school teachers who were selected via convenience sampling method. In the study, initially, the Readiness for Change Scale and the Scale for Innovation Management at schools were administered to 150 primary school teachers teaching in Istanbul province in 2018-2019 school year providing them with necessary explanation regarding the research. On eliminating missing values and outliers, the data obtained from 104 participants were considered for the data analysis. Among the participant teachers, 76 (%73,1) of them were females and 28 (%26,9) were males. Besides, 70 (%67,3) of the participants had bachelor's degree while 30 (%28,8) of them had MA degrees and 4 (%3,8) had PhD degrees. Participants were also employed in different types of institutions, 100 (%96,2) of which was public while 4 (%3,8) were private school. As the years of experience in the profession was taken into consideration, 16 (%15,4) of the participants had 1-5 years of experience while 24 (%23,1) of them had 6-10, 30 (%28,8) of them had 11-15, 14 (%13,5) of them had 16-20 and 20 (%19,2) of them had 21 and above. Duration of employment in the current institution was also thought to be important in terms readiness for change and perceiving innovation management abilities of school administrators. 48 (%46,2) of the participants had 1-3 years of experience in the current institution they employed while 26 (%25) were 4-6, 6 (%5,8) were 7-9, 6 (%5,8) were 10-12, 8 (%7,7) were 13-15, and 10 (%9,6) were 15 and above.

3.2. Data Collection Instruments

To collect the data of the study, the "Readiness for Change" scale developed by Kondakçı, Zayim and Çalışkan (2013) and the "Scale for Innovation Management in Schools" developed by Bülbül (2012) were administered. "Intention, cognitive, emotion" factors and twelve items constitute readiness for change scale. Cronbach alpha values were found at the levels of .90, .87 and .75, respectively, to be ready for change in intention, cognitive and emotion sub-dimensions (Kondakçı, Zayim & Çalışkan, 2013). 32 items and input management, organizational culture and structure, innovation strategy and project management factors constituted Innovation Management in Schools scale. Cronbach Alfa internal consistency coefficients of Innovation Management in Schools scale was calculated as .96 (Bülbül, 2012). In the present study, the Cronbach Alpha internal consistency coefficient was found as .76 regarding Readiness for Change Scale, and .98 for the Innovation Management in Schools Scale.

3.3. Data Analysis

The data were analyzed using SPSS software. Firstly, the results of Kolmogorov Smirnov test were conducted in order to analyze normality of the scales. Results of Kolmogorov-Smirnov test analysis for Readiness for Change scale (K-S(Z)=.061*; p* >.05*)* and Innovation Management in Schools scale (K-S(Z)=.075 *p* >.05*)* showed that both scales had normal distribution. Additionally, Skewness and Kurtosis values which were between -1 and +1, was considered as normal distribution of data set (George & Mallery, 2003, p. 98). Beside descriptive statistics including mean ($\bar{X}$) and standard deviation (sd) values, independent group t-test, One Way ANOVA and LSD post-hoc tests for determining the significant group were employed. Significance was declared at the $p < 0.05$ level. To determine the relationship between readiness for change and innovation management in schools Pearson Correlation Coefficient (r) was computed.

4. Findings

In this section, findings are presented by addressing research questions, respectively. The findings regarding normality of the data distribution on the readiness of teachers for change and the innovation management in schools are given in Table 1.

Table 1. *Results for K-S(Z) normality test on the readiness for change and the innovation management in schools*

Values	Readiness for Change	Innovation Management in Schools
Sd	104	104
Kolmogorov-Smirnov Z	.061	.075
P	.20	.18

As shown in Table 1, since p> 0.05 and the data of both scales are normally distributed, t Test and One-Way ANOVA were employed for the relevant data.

Table 2. *Independent group t test results to determine whether teacher readiness for change differentiates according to gender*

Factors	Groups	*N*	$\bar{x}$	*Sd*	SEM*	*t* Test		
						t	*Sd*	*p*
Cognitive	Female	76	16,13	2,714	,311	3,04	102	,003
	Male	28	14,28	2,813	,531			
Intention	Female	76	18,87	3,184	,365	2,44	102	,016
	Male	28	17,07	3,681	,695			
Emotion	Female	76	5,23	2,084	,239	-1,61	39,5	,115
	Male	28	6,14	2,690	,508			
Total	Female	76	40,23	4,408	,505	2,71	102	,008
	Male	28	37,50	5,000	,944			

*SEM=Standard Error of the Mean

As seen in Table 2, independent group t test results demonstrate that mean scores of cognitive (*t=3,04; p<.05*) and intention (*t=2,44; p<.05*) factors besides total score (*t=2,70; p<.05*) of the scale differs significantly according to the gender groups.

Table 3. *Independent group t test results to determine whether innovation management in schools differentiates according to gender*

Factors	Groups	*N*	$\bar{x}$	*Sd*	SEM	*t* Test		
						t	*Sd*	*p*
Input Management	Female	76	16,8421	5,05187	,57949	,613	102	,541
	Male	28	16,1429	5,44137	1,02832			
Innovation Strategy	Female	76	20,0263	5,14062	,58967	1,560	38,487	,127
	Male	28	17,7857	6,93011	1,30967			
Organizational Culture and Structure	Female	76	19,6579	5,45173	,62536	,012	102	,990
	Male	28	19,6429	6,20164	1,17200			
Project Management	Female	76	47,9474	12,91190	1,48110	,640	39,486	,526
	Male	28	45,7143	16,71738	3,15929			
Total	Female	76	104,4737	26,77585	3,07140	,724	39,803	,473
	Male	28	99,2857	34,24839	6,47234			

As seen in Table 3, independent group t test results show that scores of innovation management in schools do not differ significantly according to the groups of gender variable in terms of mean scores of input management (*t=.613; p>.05*), innovation strategy (*t=1.56; p>.05*), organizational culture and structure (*t=.012; p>.05*), project management (*t=.640; p>.05*) factors and total score (*t=.724; p<.05*) of the scale.

Table 4. *Independent group t test results to determine whether readiness for change differentiates according to the type of institution*

Factors	Groups	*N*	$\bar{x}$	*Sd*	SEM	*t* Test		
						t	*Sd*	*p*
Cognitive	Public	100	15,58	2,82	,282	-,97	102	,331
	Private	4	17,00	3,46	1,73			
Intention	Public	100	18,24	3,36	,336	-2,20	102	,030
	Private	4	22,00	2,30	1,15			
Emotion	Public	100	5,54	2,30	,230	1,32	102	,188
	Private	4	4,00	1,15	,577			
Total	Public	100	39,36	4,68	,468	-1,525	102	,130
	Private	4	43,00	4,61	2,30			

As seen in Table 4, independent group t test results display that mean scores of readiness for change do not differ significantly according to the type of institution variable in terms of cognitive factor *(t=-.97; p>.05)*, emotion factor *(t=1.36; p>.05)* and total score *(t=-1.52; p>.05)* of the scale. However, intention factor *(t=-2.207; p<.05)* seems to differ according to the type of institution. It is understood that the significant difference obtained from the findings is in favor of the private institution.

Table 5. *Independent group t test results to determine whether innovation management in schools differentiates according to the type of institution*

Factors	Groups	*N*	$\bar{x}$	*Sd*	SEM	*t* Test		
						t	*Sd*	*p*
Input Management	Public	100	16,68	4,99	,49	,146	3,07	,893
	Private	4	16,00	9,23	4,61			
Innovation Strategy	Public	100	19,48	5,47	,54	,255	3,05	,815
	Private	4	18,00	11,57	5,73			
Organizational Culture and Structure	Public	100	19,70	5,33	,53	,197	3,04	,856
	Private	4	18,50	12,12	6,06			
Project Management	Public	100	47,48	13,72	1,37	,486	102	,628
	Private	4	44,00	21,93	10,96			
Total	Public	100	103,30	27,84	2,78	,248	3,06	,820
	Private	4	96,50	54,84	27,42			

As seen in Table 5, independent group t test results demonstrate that mean scores of innovation management in schools do not differ significantly according to the type of institution variable groups in terms of mean scores of input management *(t=146; p>.05)*, innovation strategy *(t=255; p>.05)*, organizational culture and structure *(t=197; p>.05)*, project management *(t=486; p>.05)* factors and total score *(t=248; p>.05)* of the scale.

Table 6. *One-way ANOVA test results to determine whether readiness for change differentiate according to the duration of employment in the current institution*

f, $\bar{x}$ and *Sd* Values					ANOVA Results					
Factors	Groups	*N*	$\bar{x}$	*Sd*	SOV*	SS**	*Sd*	MS***	*F*	*p*
Intention	1-3	48	18,20	3,42	Between Groups	60,58	5	12,1	1	,39
	4-6	26	18,92	3,40	Within Groups	1132,02	98	11,5		
	7-9	6	19,66	4,22	Total	1192,61	103			
	10-12	6	17,33	2,25						
	13-15	8	19,50	3,07						
	15 +	10	16,80	3,48						
	Total	104	18,38	3,40						
Emotion	1-3	48	5,45	2,08	Between Groups	14,96	5	2,9	,5	,73
	4-6	26	5,07	2,24	Within Groups	522,99	98	5,3		
	7-9	6	6,00	2,36	Total	537,96	103			
	10-12	6	5,66	2,73						
	13-15	8	5,25	2,65						
	15 +	10	6,40	2,95						
	Total	104	5,48	2,28						
Cognitive	1-3	48	15,45	2,65	Between Groups	49,95	5	9,9	1,2	,29
	4-6	26	15,92	2,89	Within Groups	786,16	98	8,0		
	7-9	6	16,00	3,57	Total	836,11	103			
	10-12	6	15,00	3,22						
	13-15	8	17,50	3,07						
	15 +	10	14,40	2,63						
	Total	104	15,63	2,84						
Total	1-3	48	39,12	4,59	Between Groups	149,67	5	29,9	1,3	,24
	4-6	26	39,92	5,54	Within Groups	2136,32	98	21,7		
	7-9	6	41,66	4,92	Total	2286,00	103			
	10-12	6	38,00	3,09						
	13-15	8	42,25	3,41						
	15 +	10	37,60	3,68						
	Total	104	39,50	4,71						

*SOV=Source of Variation
**SS=Sum of Squares
***MS=Mean Squares

As seen in Table 6, One Way ANOVA test results display that mean scores of readiness for change do not differ significantly according to the duration of employment in the current institution variable groups in terms of mean scores of intention (F=1.049; .394), emotion (F=.561; .730), cognitive (F=1.245; .294) factors and total score (F=1.373; .241) of the scale.

Table 7. *One-way ANOVA test results to determine whether innovation management in schools differentiate according to the duration of employment in the current institution*

f, $\bar{x}$ and *Sd* Values					ANOVA Results					
Factors	Groups	*N*	$\bar{x}$	*Sd*	SOV	SS	*Sd*	MS	*F*	*p*
Input Mangement	1-3	48	16,7	4,50	Between Groups	466,8	5	93,3	4	,002
	4-6	26	19,0	4,05	Within Groups	2256,7	98	23,0		
	7-9	6	13,3	6,59	Total	2723,5	103			
	10-12	6	11,0	6,26						
	13-15	8	14,0	7,44						
	15 +	10	17,6	3,16						
	Total	104	16,6	5,14						
Innovation Strategy	1-3	48	19,1	4,81	Between Groups	744,8	5	148,9	5,5	,000
	4-6	26	22,3	5,57	Within Groups	2636,5	98	26,9		
	7-9	6	15,0	5,44	Total	3381,3	103			
	10-12	6	11,6	6,59						
	13-15	8	18,5	6,43						
	15 +	10	21,4	3,56						
	Total	104	19,4	5,72						
Organizational Culture and Structure	1-3	48	19,9	4,97	Between Groups	374,5	5	74,9	2,5	,033
	4-6	26	22,0	5,02	Within Groups	2893,0	98	29,5		
	7-9	6	15,3	4,13	Total	3267,5	103			
	10-12	6	17,0	9,07						
	13-15	8	19,0	6,80						
	15 +	10	17,0	5,53						
	Total	104	19,6	5,63						
Project Management	1-3	48	48,5	12,31	Between Groups	3297,1	5	659,4	3,8	,003
	4-6	26	53,3	12,60	Within Groups	16854,4	98	171,9		
	7-9	6	33,3	15,70	Total	20151,5	103			
	10-12	6	35,0	19,61						
	13-15	8	42,7	13,82						
	15 +	10	45,4	11,86						
	Total	104	47,3	13,98						
Total	1-3	48	104,3	25,29	Between Groups	14420,7	5	2884,1	3,9	,003
	4-6	26	116,6	25,36	Within Groups	71570,6	98	730,3		
	7-9	6	77,0	31,15	Total	85991,3	103			
	10-12	6	74,6	40,59						
	13-15	8	94,2	34,17						
	15 +	10	101,4	21,46						
	Total	104	103,0	28,89						

As seen in Table 7, One Way ANOVA test results show that mean scores of innovation management in schools differ significantly according to the duration of employment in the

current institution variable groups in terms of mean scores of input management (F=4,054; .002), innovation strategy (F=5,537; .000), organizational culture and structure (F=2,537; .033), project management (F=3,834; .003) factors and total score (F=1.373; .241) of the scale. LSD post-hoc test was used to determine from which group this difference emerged.

Table 8. *LSD post-hoc test results to determine differentiated groups according to the duration of employment in the current institution in terms of input management factor*

Groups (i)	Groups (j)	$\bar{x}_i - \bar{x}_j$	SEM	p
1-3	4-6	-2,25000	1,16852	,057
	7-9	3,41667	2,07791	,103
	10-12	5,75000	2,07791	,007
	13-15	2,75000	1,83255	,137
	15 +	-,85000	1,66809	,612
4-6	1-3	2,25000	1,16852	,057
	7-9	5,66667	2,17340	,011
	10-12	8,00000	2,17340	,000
	13-15	5,00000	1,94015	,011
	15 +	1,40000	1,78563	,435
7-9	1-3	-3,41667	2,07791	,103
	4-6	-5,66667	2,17340	,011
	10-12	2,33333	2,77055	,402
	13-15	-,66667	2,59161	,798
	15 +	-4,26667	2,47806	,088
10-12	1-3	-5,75000	2,07791	,007
	4-6	-8,00000	2,17340	,000
	7-9	-2,33333	2,77055	,402
	13-15	-3,00000	2,59161	,250
	15 +	-6,60000	2,47806	,009
13-15	1-3	-2,75000	1,83255	,137
	4-6	-5,00000	1,94015	,011
	7-9	,66667	2,59161	,798
	10-12	3,00000	2,59161	,250
	15 +	-3,60000	2,27624	,117
15 +	1-3	,85000	1,66809	,612
	4-6	-1,40000	1,78563	,435
	7-9	4,26667	2,47806	,088
	10-12	6,60000	2,47806	,009
	13-15	3,60000	2,27624	,117

As seen in Table 8, LSD post-hoc test results show that significant differences were identified between 1-3 and 10-12 year of employment groups in favor of 1-3 year of employment (p<.01), between 4-6 and 7-9, 10-12 and 13-15 year of employment groups in favor of 4-6 year of employment (p<.01), between 10-12 and 15 and above year of employment groups in favor of 10-12 year of employment (p<.01).

Table 9. *LSD post-hoc test results to determine differentiated groups according to the duration of employment in the current institution in terms of innovation strategy factor*

Groups (i)	Groups (j)	$\bar{x}_i - \bar{x}_j$	SEM	p
1-3	4-6	-3,18269	1,26302	,013
	7-9	4,12500	2,24597	,069
	10-12	7,45833	2,24597	,001
	13-15	,62500	1,98076	,753
	15 +	-2,27500	1,80300	,210
4-6	1-3	3,18269	1,26302	,013
	7-9	7,30769	2,34917	,002
	10-12	10,64103	2,34917	,000
	13-15	3,80769	2,09706	,072
	15 +	,90769	1,93004	,639
7-9	1-3	-4,12500	2,24597	,069
	4-6	-7,30769	2,34917	,002
	10-12	3,33333	2,99462	,268
	13-15	-3,50000	2,80121	,214
	15 +	-6,40000	2,67847	,019
10-12	1-3	-7,45833	2,24597	,001
	4-6	-10,64103	2,34917	,000
	7-9	-3,33333	2,99462	,268
	13-15	-6,83333	2,80121	,017
	15 +	-9,73333	2,67847	,000
13-15	1-3	-,62500	1,98076	,753
	4-6	-3,80769	2,09706	,072
	7-9	3,50000	2,80121	,214
	10-12	6,83333	2,80121	,017
	15 +	-2,90000	2,46033	,241
15 +	1-3	2,27500	1,80300	,210
	4-6	-,90769	1,93004	,639
	7-9	6,40000	2,67847	,019
	10-12	9,73333	2,67847	,000
	13-15	2,90000	2,46033	,241

As seen in Table 9, LSD post-hoc test results show that significant differences were identified between 1-3 and 10-12 year of employment groups in favor of 1-3 year of employment ($p<.01$), between 4-6 and 7-9, 10-12 year of employment groups in favor of 4-6 year of employment ($p<.01$), between 13-15 and 10-12 year of employment groups in favor of 13-15 year of employment ($p<.01$), between 15 and above and 10-12 year of employment groups in favor of 15 and above year of employment ($p<.01$).

Table 10. *LSD post-hoc test results to determine differentiated groups according to the duration of employment in the current institution in terms of organizational culture and structure factor*

Groups (i)	Groups (j)	$\bar{x}_i - \bar{x}_j$	SEM	p
1-3	4-6	-2,08333	1,32303	,119
	7-9	4,58333	2,35267	,054
	10-12	2,91667	2,35267	,218
	13-15	,91667	2,07486	,660
	15 +	2,91667	1,88866	,126
4-6	1-3	2,08333	1,32303	,119
	7-9	6,66667	2,46079	,008
	10-12	5,00000	2,46079	,045
	13-15	3,00000	2,19669	,175
	15 +	5,00000	2,02174	,015
7-9	1-3	-4,58333	2,35267	,054
	4-6	-6,66667	2,46079	,008
	10-12	-1,66667	3,13690	,596
	13-15	-3,66667	2,93430	,214
	15 +	-1,66667	2,80573	,554
10-12	1-3	-2,91667	2,35267	,218
	4-6	-5,00000	2,46079	,045
	7-9	1,66667	3,13690	,596
	13-15	-2,00000	2,93430	,497
	15 +	,00000	2,80573	1,000
13-15	1-3	-,91667	2,07486	,660
	4-6	-3,00000	2,19669	,175
	7-9	3,66667	2,93430	,214
	10-12	2,00000	2,93430	,497
	15 +	2,00000	2,57723	,440
15 +	1-3	-2,91667	1,88866	,126
	4-6	-5,00000	2,02174	,015
	7-9	1,66667	2,80573	,554
	10-12	,00000	2,80573	1,000
	13-15	-2,00000	2,57723	,440

As seen in Table 10, LSD post-hoc test results show that significant differences were identified between 4-6 and 7-9, 10-12, 15 and above year of employment groups in favor of 4-6 year of employment ($p<.05$).

Table 11. *LSD post-hoc test results to determine differentiated groups according to the duration of employment in the current institution in terms of project management factor*

Groups (i)	Groups (j)	$\bar{x}_i - \bar{x}_j$	SEM	p
1-3	4-6	-4,72436	3,19340	,142
	7-9	15,25000	5,67865	,009
	10-12	13,58333	5,67865	,019
	13-15	5,83333	5,00809	,247
	15 +	3,18333	4,55866	,487
4-6	1-3	4,72436	3,19340	,142
	7-9	19,97436	5,93959	,001
	10-12	18,30769	5,93959	,003
	13-15	10,55769	5,30215	,049
	15 +	7,90769	4,87987	,108
7-9	1-3	-15,25000	5,67865	,009
	4-6	-19,97436	5,93959	,001
	10-12	-1,66667	7,57153	,826
	13-15	-9,41667	7,08252	,187
	15 +	-12,06667	6,77218	,078
10-12	1-3	-13,58333	5,67865	,019
	4-6	-18,30769	5,93959	,003
	7-9	1,66667	7,57153	,826
	13-15	-7,75000	7,08252	,277
	15 +	-10,40000	6,77218	,128
13-15	1-3	-5,83333	5,00809	,247
	4-6	-10,55769	5,30215	,049
	7-9	9,41667	7,08252	,187
	10-12	7,75000	7,08252	,277
	15 +	-2,65000	6,22064	,671
15 +	1-3	-3,18333	4,55866	,487
	4-6	-7,90769	4,87987	,108
	7-9	12,06667	6,77218	,078
	10-12	10,40000	6,77218	,128
	13-15	2,65000	6,22064	,671

As seen in Table 11, LSD post-hoc test results show that significant differences were identified between 1-3 and 7-9, 10-12 year of employment groups in favor of 1-3 year of employment ($p<.05$), between 4-6 and 7-9, 10-12, 15 and above year of employment groups in favor of 4-6 years of employment ($p<.05$).

Table 12. *One-way ANOVA test results to determine whether readiness for change differentiate according to the years of experience in the profession*

f, $\bar{x}$ and *sd* values					Anova results					
Factors	Groups	*N*	$\bar{x}$	*Sd*	SOV	SS	*Sd*	MS	*F*	*p*
Intention	1-5	16	17,12	2,33	Between Groups	141,0	4	35,2	3,31	,013
	6-10	24	19,66	2,68	Within Groups	1051,5	99	10,6		
	11-15	30	19,26	3,75	Total	1192,6	103			
	16-20	14	16,57	4,66						
	21+	20	17,80	2,41						
	Total	104	18,38	3,40						
Emotion	1-5	16	5,37	1,99	Between Groups	41,8	4	10,4	2,08	,088
	6-10	24	4,58	1,41	Within Groups	496,1	99	5,0		
	11-15	30	5,66	2,53	Total	537,9	103			
	16-20	14	6,71	2,64						
	21+	20	5,50	2,43						
	Total	104	5,48	2,28						
Cognitive	1-5	16	15,00	3,09	Between Groups	22,9	4	5,7	,698	,595
	6-10	24	16,33	2,86	Within Groups	813,1	99	8,2		
	11-15	30	15,80	3,08	Total	836,1	103			
	16-20	14	15,28	2,75						
	21+	20	15,30	2,34						
	Total	104	15,63	2,84						
Total	1-5	16	37,50	5,77	Between Groups	166,0	4	41,5	1,93	,110
	6-10	24	40,58	4,55	Within Groups	2119,9	99	21,4		
	11-15	30	40,73	4,55	Total	2286,0	103			
	16-20	14	38,57	4,79						
	21+	20	38,60	3,56						
	Total	104	39,50	4,71						

As seen in Table 12, One Way ANOVA test results show that mean scores of readiness for change differ significantly according to the years of experience in the profession variable in terms of mean scores of intention factor (F=3.319; .013) while emotion (F=2.088; .088), cognitive (F=.698; .595), and total mean score (F=1.939; .110) of the scale do not differ significantly. LSD post-hoc test was used to determine from which group this difference emerged.

Table 13. *LSD post-hoc test results to determine differentiated groups according to the years of experience in the profession in terms of intention factor*

Groups (i)	Groups (j)	$\bar{x}_i - \bar{x}_j$	SEM	p
1-5	6-10	-2,54167	1,05188	,018
	11-15	-2,14167	1,00893	,036
	16-20	,55357	1,19272	,644
	21+	-,67500	1,09315	,538
6-10	1-5	2,54167	1,05188	,018
	11-15	,40000	,89255	,655
	16-20	3,09524	1,09604	,006
	21+	1,86667	,98675	,061
11-15	1-5	2,14167	1,00893	,036
	6-10	-,40000	,89255	,655
	16-20	2,69524	1,05488	,012
	21+	1,46667	,94083	,122
16-20	1-5	-,55357	1,19272	,644
	6-10	-3,09524	1,09604	,006
	11-15	-2,69524	1,05488	,012
	21+	-1,22857	1,13570	,282
21+	1-5	,67500	1,09315	,538
	6-10	-1,86667	,98675	,061
	11-15	-1,46667	,94083	,122
	16-20	1,22857	1,13570	,282

As seen in Table 13, LSD post-hoc test results show that significant differences were identified between 6-10 and 1-5, 16-20 year of experience in profession groups in favor of 6-10 year of experience in profession ($p<.05$), between 11-15 and 1-5, 16-20 year of experience in profession groups in favor of 11-15 year of experience in profession ($p<.05$).

Table 14. *One-way ANOVA test results to determine whether innovation management in schools differentiate according to the years of experience in the profession*

f, $\bar{x}$ and *Sd* Values					ANOVA Results					
Factors	Groups	*N*	$\bar{x}$	*Sd*	SOV	SS	*Sd*	MS	*F*	*p*
Input Management	1-5	16	15,3	3,89	Between Groups	86,9	4	21,7	,816	,51
	6-10	24	15,8	5,18	Within Groups	2636,6	99	26,6		
	11-15	30	16,8	6,29	Total	2723,5	103			
	16-20	14	18,2	2,86						
	21+	20	17,2	5,30						
	Total	104	16,6	5,14						
Innovation Strategy	1-5	16	16,6	5,13	Between Groups	213,9	4	53,4	1,672	,16
	6-10	24	19,0	4,31	Within Groups	3167,4	99	31,9		
	11-15	30	19,8	7,02	Total	3381,3	103			
	16-20	14	21,7	2,52						
	21+	20	20,0	6,60						
	Total	104	19,4	5,72						
Organizational Culture and Structure	1-5	16	18,3	4,50	Between Groups	139,8	4	34,9	1,107	,35
	6-10	24	21,0	5,36	Within Groups	3127,6	99	31,5		
	11-15	30	19,2	6,82	Total	3267,5	103			
	16-20	14	18,0	5,05						
	21 +	20	20,7	5,02						
	Total	104	19,6	5,63						
Project Management	1-5	16	46,1	12,88	Between Groups	122,0	4	30,5	,151	,96
	6-10	24	47,8	13,44	Within Groups	20029,4	99	202,3		
	11-15	30	46,4	15,20	Total	20151,5	103			
	16-20	14	47,1	11,42						
	21+	20	49,2	16,18						
	Total	104	47,3	13,98						
Total	1-5	16	96,5	24,22	Between Groups	1100,1	4	275,0	,321	,86
	6-10	24	103,7	27,24	Within Groups	84891,2	99	857,4		
	11-15	30	102,4	34,30	Total	85991,3	103			
	16-20	14	105,1	19,75						
	21+	20	107,1	32,30						
	Total	104	103,0	28,89						

As seen in Table 14, One Way ANOVA test results show that mean scores of innovation management in schools do not differ significantly according to the years of experience in the profession variable in terms of mean scores of input management (F=.816; .518), innovation

strategy (F=1,672; .163), organizational culture and structure (F=1,107; .358), project management (F=.151 .962) and total mean score (F=.321; .863) of the scale.

Table 15. *One-way ANOVA test results to determine whether readiness for innovation differentiate according to the degree of education*

f, $\bar{x}$ and *Sd* Values					ANOVA Results					
Factors	Groups	*N*	$\bar{x}$	*Sd*	SOV	SS	*Sd*	MS	*F*	*p*
Cognitive	BA	70	15,6	2,8	Between Groups	6,8	2	3,4	,417	,660
	MA	30	15,8	2,8	Within Groups	829,2	101	8,2		
	PhD	4	14,5	2,8	Total	836,1	103			
	Total	104	15,6	2,8						
Intention	BA	70	18,0	3,4	Between Groups	19,1	2	9,5	,823	,442
	MA	30	19,0	3,2	Within Groups	1173,4	101	11,6		
	PhD	4	19,0	4,6	Total	1192,6	103			
	Total	104	18,3	3,4						
Emotion	BA	70	5,8	2,4	Between Groups	48,5	2	24,2	5,010	,008
	MA	30	4,4	1,5	Within Groups	489,4	101	4,8		
	PhD	4	7,0	1,1	Total	537,9	103			
	Total	104	5,4	2,2						
Total	BA	70	39,5	4,1	Between Groups	4,848	2	2,4	,107	,898
	MA	30	39,3	5,7	Within Groups	2281,1	101	22,5		
	PhD	4	40,5	6,3	Total	2286,0	103			
	Total	104	39,5	4,7						

As seen in Table 15, One Way ANOVA test results show that mean scores of readiness for change differ significantly according to the degree of education variable in terms of mean scores of emotion factor (F=5.010; .008) while cognitive (F=.417; .660), intention (F=.823; .442), and total mean score (F=.107; .898) of the scale do not differ significantly. LSD post-hoc test was used to determine from which group this difference emerged.

Table 16. *LSD post-hoc test results to determine differentiated groups according to the degree of education in terms of emotion factor*

	Groups (i)	Groups (j)	$\bar{x}_i - \bar{x}_j$	SEM	p
Emotion	BA	MA	1,36190	,48036	,006
		PhD	-1,17143	1,13165	,303
	MA	BA	-1,36190	,48036	,006
		PhD	-2,53333	1,17172	,033
	PhD	BA	1,17143	1,13165	,303
		MA	2,53333	1,17172	,033

As seen in Table 16, LSD post-hoc test results show that significant differences were identified between bachelor's degree group and MA group which is in favor of bachelor's degree ($p<.01$), between MA and PhD group in favor of PhD ($p<.05$).

Table 17. *One-way ANOVA test results to determine whether innovation management in schools differentiate according to the degree of education*

f, $\bar{x}$ and Sd Values					ANOVA Results					
Factors	Groups	N	$\bar{x}$	Sd	SOV	SS	Sd	MS	F	p
Input Management	BA	70	15,4	5,0	Between Groups	371,2	2	185,6	7,9	,001
	MA	30	18,8	4,3	Within Groups	2352,2	101	23,2		
	PhD	4	22,0	,0	Total	2723,5	103			
	Total	104	16,6	5,1						
Innovation Strategy	BA	70	18,5	5,6	Between Groups	324,4	2	162,2	5,3	,006
	MA	30	20,5	5,3	Within Groups	3056,9	101	30,2		
	PhD	4	27,0	,0	Total	3381,3	103			
	Total	104	19,4	5,7						
Organizational Culture and Structure	BA	70	18,4	5,4	Between Groups	374,9	2	187,4	6,5	,002
	MA	30	21,6	5,4	Within Groups	2892,5	101	28,6		
	PhD	4	26,0	1,1	Total	3267,5	103			
	Total	104	19,6	5,6						
Project Management	BA	70	44,4	13,6	Between Groups	2366,7	2	1183,3	6,7	,002
	MA	30	52,0	12,8	Within Groups	17784,8	101	176,0		
	PhD	4	64,0	3,4	Total	20151,5	103			
	Total	104	47,3	13,9						
Total	BA	70	96,7	28,0	Between Groups	10899,0	2	5449,5	7,3	,001
	MA	30	113,0	26,7	Within Groups	75092,3	101	743,4		
	PhD	4	139,0	4,6	Total	85991,3	103			
	Total	104	103,0	28,8						

As seen in Table 17, One Way ANOVA test results show that mean scores of innovation management in schools differ significantly according to the degree of education variable in terms of mean scores of input management (F=7.971; .001), innovation strategy (F=5.360; .006), organizational culture and structure (F=6.546; .002), project management (F=6.720; .002) and total mean score (F=7.330; .001) of the scale. LSD post-hoc test was used to determine from which group this difference emerged.

Table 18. *LSD post-hoc test results to determine differentiated groups according to the degree of education in terms of innovation management in school*

	Groups (i)	Groups (j)	$\bar{x}_i - \bar{x}_j$	SEM	p
Input Management	BA	MA	-3,46667	1,05311	,001
		PhD	-6,60000	2,48096	,009
	MA	BA	3,46667	1,05311	,001
		PhD	-3,13333	2,56881	,225
	PhD	BA	6,60000	2,48096	,009
		MA	3,13333	2,56881	,225
Innovation Strategy	BA	MA	-2,01905	1,20053	,096
		PhD	-8,48571	2,82827	,003
	MA	BA	2,01905	1,20053	,096
		PhD	-6,46667	2,92841	,029
	PhD	BA	8,48571	2,82827	,003
		MA	6,46667	2,92841	,029
Organizational Culture and Structure	BA	MA	-3,14286	1,16781	,008
		PhD	-7,54286	2,75117	,007
	MA	BA	3,14286	1,16781	,008
		PhD	-4,40000	2,84859	,126
	PhD	BA	7,54286	2,75117	,007
		MA	4,40000	2,84859	,126
Project Management	BA	MA	-7,60000	2,89570	,010
		PhD	-19,60000	6,82183	,005
	MA	BA	7,60000	2,89570	,010
		PhD	-12,00000	7,06338	,092
	PhD	BA	19,60000	6,82183	,005
		MA	12,00000	7,06338	,092

As seen in Table 18, LSD post-hoc test results show that significant differences were identified regarding input management between MA and Bachelor's Degree in favor of MA group ($p<.05$), between MA and PhD in favor of PhD group ($p<.05$), between Bachelor's Degree and PhD in favor of PhD group ($p<.05$).

LSD post-hoc test results also display that significant differences were identified regarding innovation strategy between MA and PhD in favor of PhD group ($p<.05$), between bachelor's degree and PhD in favor of PhD group ($p<.05$).

Additionally, LSD post-hoc test results indicate that significant differences were identified regarding organizational culture and structure between MA and bachelor's degree in favor of MA group ($p<.01$), between bachelor's degree and PhD in favor of PhD group ($p<.05$).

Finally, LSD post-hoc test results show that significant differences were identified regarding project management between MA and bachelor's degree in favor of MA group (p<.05), between bachelor's degree and PhD in favor of PhD group (p<.01).

Table 19. *The result of Pearson product moment correlation test to determine the relationship between the readiness for change and innovation management in schools*

	Innovation Strategy	Organizational culture and structure	Project management	Cognitive	Intention	Emotion	Innovation Management in Schools	Readiness for Change
Innovation Strategy	1							
Organizational culture and structure	,815**	1						
	,000							
	104							
Project management	,872**	,913**	1					
	,000	,000						
	104	104						
Cognitive	,344**	,321**	,333**	1				
	,000	,001	,001					
	104	104	104					
Intention	,347**	,314**	,284**	,770**	1			
	,000	,001	,004	,000				
	104	104	104	104				
Emotion	-,148	-,215*	,170	-,593**	-,638**	1		
	,135	,029	,085	,000	,000			
	104	104	104	104	104			
Innovation Management in Schools	,934**	,938**	,978**	,318**	,298**	-,190	1	
	,000	,000	,000	,001	,002	,054		
	104	104	104	104	104	104		
Readiness for Change	,387**	,317**	,324**	,873**	,878**	-,335**	,316**	1
	,000	,001	,001	,000	,000	,001	,001	
	104	104	104	104	104	104	104	

Cohen (1988) suggests that *r* value is low if it is .1-.3, medium as .3-.5 and large as .5-.1.0. As it is seen in Table 19, there is a strong, positive and significant relationship between innovation strategy and organizational culture and structure (r=,815), project management (r=,872), and innovation management in schools (r=,934) while medium level, positive and significant relationship found between cognitive factor (r=,344), intention factor (r=,347), and readiness for change (r=,387). Organizational culture and structure also has strong, positive and significant relationship with project management (r=,913) and innovation management in schools whereas medium level, positive and significant relationship found between organizational culture and structure cognitive factor (r=,321), intention factor (r=,314), and readiness for change (r=,317). Additionally, project management has strong, positive and significant relationship with innovation management in schools (r=,978) while it has medium level, positive and significant relationship between cognitive factor (r=,333), and readiness for change (r=,324). Cognitive factor has strong, positive and significant relationship with intention factor (r=,770), and readiness for change (r=,873) while it has medium level, positive and significant relationship with innovation management in schools (r=,318). Emotion factor has medium level, negative and significant relationship with readiness for change (r=-,335). It is can also be seen that there is medium level, negative and significant relationship between

Organizational culture and structure and emotion (r=-,215), emotion factor and cognitive factor (r=-,593), intention factor (r=-638). Finally, there is a medium level, positive and significant relationship between readiness for change and innovation management in schools.

5. Discussion, Conclusion and Recommendations

Innovation is essential to the survival or improvement of individuals, organizations, and nations in a constantly changing global knowledge economy (Hodgson, 2012). In order to play an active role in the implementation of current education policies, teachers must ensure their professional development. For this reason, higher education institutions are expected to train teachers who are able to fulfill demands of 21st century (Kropff, 2014). Innovation procedures and activities are seen as part of development and growth by several countries beside integrating it to national strategies. Thus, educational innovations are essential for societies. Within this context, the purpose of the current study was to investigate relationship between teachers' readiness for innovation and their perception towards innovation management skills of administrators. Several studies are implemented regarding change with different perspectives (Armenakis, Harris, & Mossholder, 1993; Bouckenooghe & Devos, 2007; Piderit, 2000; Reichers, Wanous, & Austin, 1997; Wanberg & Banas, 2000). The results of the study show that whereas teachers' readiness for innovation differs significantly according to the gender, there is no significant difference in terms of type of institution, duration of employment in the current institution, years of experience in the profession and degree of education. Readiness for innovation of teachers do not also differ significantly in terms of years of experience in the profession, gender, degree of education, and in-service training in several studies (Levent, 2016; Cenker & Macaroğlu Akgül, 2011; Helvacı & Kıcıroğlu, 2010; Kurşunoğlu & Tanriöğen, 2006).

According to teachers' perceptions of innovation management in schools, there is no significant difference in terms of gender, type of institution and years of experience in the profession which is consistent with the findings of the previous studies regarding gender (Awamleh, 1994; Jolles, McBeath, Carnochan & Austin, 2016; Damanpour & Schneider, 2006; Göl & Bülbül, 2012; Demir Başaran & Keleş, 2015), type of institution (Aslan, Beycioğlu & Konan, 2008; Canlı, Demirtaş & Özer, 2015), and years of experience (Göl & Bülbül, 2012; Bayrakçı & Eraslan, 2014; Demir Başaran & Keleş, 2015; Boydak-Ozan & Karabatak, 2013; Top, 2011).

The results of the study show that teachers' perceptions of innovation management in schools differentiate in terms of degree of education. Fullan (2002) states that teachers who continue their professional development on management of innovation in schools are able to manage innovation more effectively. Goff, Goldring, Guthrie and Bickman (2014) also imply that school managers who care and provide professional development for teachers, are more successful on adaptation to innovation Moreover, Ersöz (2009) highlights degree of education in the study focusing on European Innovation Indicators (UII) report in which degree of education is taken as an indicator for investigating innovation process. UN, UNESCO, UNICEF, ILO and the World Bank define and support education as the most fundamental human right (Patrinos & Psacharapoulos, 2011).

The leaders are supposed to have intellectual knowledge, strong intelligence, broad vision and solid personality that can prepare the organization for the future (Durna, 2002, 180). Adair (2008) also suggests several requirements for innovation management including innovation strategy, consistency of management decisions, a long-term perspective, sensitivity to innovation, taking risk, appropriate organizational structure and culture for innovation. In the study, it is found that there is a positive and significant relationship between teachers' readiness for change and the school administrators' perception of innovation management in schools.

School administrators, playing an important role on teachers' readiness for change, need to be conscious about preparing teachers for change. Teachers who become conscious about innovation may support the organization in order to provide the necessary changes. Walker (2003) notes that in prescriptions for innovation, it is essential to manage initiatives of innovation and organization managers have important role on embedding innovative values and norms such as risk taking and creating culture. Moreover, there are various models for management of innovation process including structure, task, technology, culture, strategy, power distribution, and control system (Tushman & Romanelli, 1985; Gassmann, 2006; Dahlander & Gann, 2010; Buganza, Chiaroni, Colombo & Frattini, 2011). From this point of view, management of innovation becomes critical in terms of readiness for it.

The results of the study have several implications both teachers and administrators. School administrators are suggested to use effective communication for teachers' adoption of innovation. Since management of innovation is a demanding process, school administrators may enroll in in-service programs to enhance management skills. Teachers are practitioners of innovation in education institutions. To enhance their readiness for innovation, teachers may be encouraged to continue their professional development through receiving graduate education. Also, their awareness of innovation may be increased by providing opportunities such as workshops, in-service programs, and scientific conferences.

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