Individual Innovativeness Levels of Educational Administrators

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Abstract

In the present study carried out with 190 educational administrators, the individual innovativeness of educational administrators was examined. As a result of the study, it was found out that the educational administrators considered themselves as early adaptors. It was also revealed that professional seniority was not important in terms of individual innovativeness and those educational administrators with professional experience of 10 years or over had the same level of innovativeness as those with experience below 10 years did. The results also demonstrated that educational administrators with experience below 10 years had the same level of individual innovativeness. In addition, the results obtained revealed a difference between the computer use frequencies of educational administrators and their individual innovativeness. In other words, it was found out that educational administrators using the Internet everyday were more innovative than those using the Internet a few times a week or a month. Depending on the results obtained in the study, various suggestions were put forward for applied and future studies.

Keywords

Educational administrators; individual innovativeness; new technologies in education; education and control.

I. Introduction

In today's world, a new technology penetrates into our daily lives every new day. Technological innovations force individuals to renovate themselves. In order to be successful in business life, institutions and individuals should keep up with these innovations (Sabherwal, Hirscheim and Goles, 2001). Administrators directing especially the institutions are also supposed to keep up with the innovations. Among administrative processes, innovation is another important factor besides alignment and culture (Vishwanath and Chen, 2006).

It is especially important for educational administrators to become innovative so that innovations can be spread throughout institutions in educational industry expected constantly to have a dynamic and innovative structure. Administrators' innovativeness in educational institutions will help such sharers of the educational process as teachers, students and parents to adopt and follow innovativeness. Depending on this importance, the present study investigated educational administrators' levels of innovativeness with respect to different dimensions.

a. Individual Innovativeness Theory

Rogers gave inspiration to a number of studies regarding innovation and individual innovativeness (Brandon, 2008;Gillard, Bailey and Nolan, 2008; Jackson, Yi and Park, 2010; Janssen, Van De Vliert and West, 2004; Kilicer and Odabasi, 2010; Yuan and Woodman, 2010). Rogers defines innovation as "an idea, practice, or object that is perceived as new by an individual or other unit of adoption" (Rogers, 2003). Individual innovativeness is defined as developing, adopting or implementing an innovation (Yuan and Woodman, 2010). Rogers (2003) states that in individual innovativeness theory, there is always new information within the social system and that this new information is processed by adopters (Rogers, 2003).

In the process of adaptation, adopters act upon their perceptions regarding the characteristics of the innovation. Although there are a number of contextual factors, some findings are influential on adopters' decisions regarding adaptation to innovation. In other words, individuals are likely to have certain perceptions regarding a new technology that they have met in their social environments. These perceptions are quite important in terms of innovativeness. It is seen that individuals have different degrees of adaptation to innovation. In general, the population distribution of adaptation to innovation is expected to have almost normal distribution (Jackson, Yi and Park, 2010).

However, Rogers (2003) states that there is no normal distribution due to different determiners such as resistance to technology and material dimension regarding the innovation distribution; that in a society, there are not many innovative individuals; and that there is a bell-shaped distribution (Figure 1).

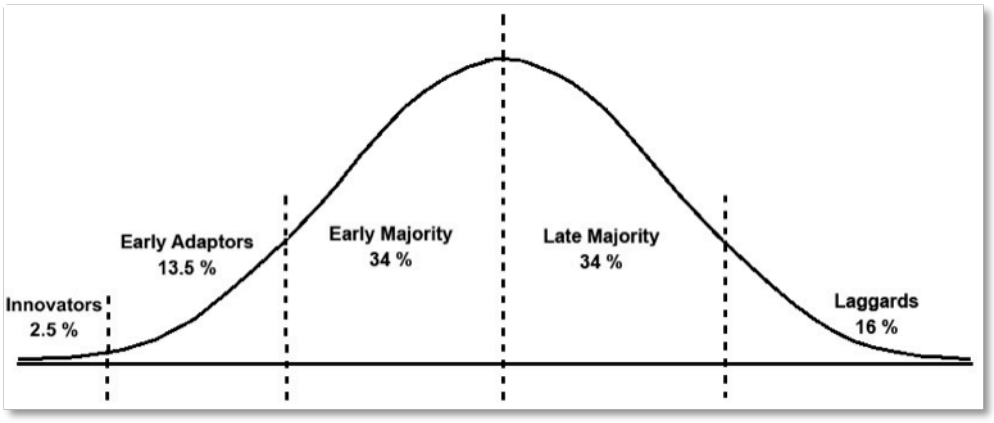

Figure 1. Categories of adopters' individual innovativeness (Rogers, 2003)

As can be seen in Figure 1, Rogers (2003) stated that in the society, people demonstrate different responses to innovation depending on their personality traits. In line with these responses, the researcher divides individual innovativeness into five different categories from earliest to latest: innovators, early adopters, early majority, late majority and laggards. In addition, the researcher determines the distribution of individuals in a society belonging to each category.

Accordingly, among all the individuals in a society, only 2.5% of them are in the category of innovative, 13.5% of them are in the category of early adaptors, 34% of them are in the category of early majority, 34% of them are in the category of late majority and 16% of them are in the category of laggards. Rogers (2003) explains the characteristics of people in this group as follows;

- Innovators- the risk takers willing to take the initiative and time to try something new. (What is it?)
- Early Adopters - tend to be respected group leaders, the individuals essential to adoption by whole group. (What problem will it potentially solve?)
- Early Majority - the careful, safe, deliberate individuals unwilling to risk time or other resources. (What problem will it solve now?)
- Late Majority - those suspect of or resistant to change. Hard to move without significant influence. (Does it work?)
- Laggards - these are those who are consistent or even adamant in resisting change. Pressure needed to force change. (Do I have to use this thing?)

It is important that individuals in the administrative position for groups be innovative and thus choose the directors of corporate or institutions – who will apply for the position of administrator - as innovators (Brandon, 2008). Depending on their psychological states, it is possible to determine the individual innovativeness of individuals (Rogers, 2003; Yuan and Woodman, 2010). In this respect, determining educational administrators' innovativeness will help them play the leading role in innovation and changes in their institutions and will allow various studies to be conducted.

b. Literature Review

Studies on innovation and innovativeness in related literature date back to 1965 and 1970s, yet they have generally focused on the field of business. Most of these studies were carried out to determine the characteristics of adjustment to innovation and innovativeness in organizations (Damanpour and Schneider, 2009; Damanpour and Schneider, 2006).

It was also seen that some studies in related literature focused on a certain innovation. One study carried out with 142 teachers by Könings, Gruwel and Merrienboer (2007) examined teachers' perceptions of innovations in learning environments with respect to such variables as years of teaching, gender and the number of courses taught. Besides these studies, in some other studies, a certain technology, technologies in general, was considered as an innovation parallel to technological developments. As an example, one study examined how features perceived as MMS (Multimedia Messaging Service) differed with respect to categories of innovativeness (Hsu, Lu and Hsu, 2007). Another study was conducted to investigate the innovativeness profiles of faculty regarding the adoption of new instructional technology into the instructional process (Hall and Elliott, 2003). Similarly, in another study, the relationship between the categories of innovativeness and technology use levels of faculty in computer use for instructional purposes (Sahin and Thompson, 2006).

It is seen in literature that studies related to innovativeness have a tendency towards the investigation of technology adaption parallel to technological developments. These studies examined individuals' technology adaption and innovativeness with respect to the adopter innovativeness category based on the model of Diffusion of Innovation developed by Rogers(Lin, 2004; Sahin and Thompson, 2006; *Vishwanath and Chen, 2006*). In addition, it is seen that studies on innovativeness generally focused on educational change. According to the overall results of these studies, individual innovativeness influences educational change (Tondeur, Devos, Van Houtte, Van Braak and Valcke, 2009; Hannon, 2009). However, in related literature, there is no research conducted to examine educational administrators' levels of innovativeness.

c. Purpose

The purpose of this study was to determine educational administrators' individual innovativeness. For this purpose, the following research questions were directed:

1. What are the individual innovativeness states of educational administrators?
2. Is there a difference between educational administrators' professional experience and their individual innovativeness?
3. Is there a difference between educational administrators' Internet use frequencies and their individual innovativeness?

II. Method

a. Participants of the Study

The participants of the study were 190 educational administrators from seven different regions in Turkey in the academic year of 2010-2011. Among the participants of the study, 116 of them (61%) had professional experience of more than 10 years, while 74 of them (39%) had professional experience of less than 10 years. In terms of Internet use frequency, more than half of all the participants (56) used the Internet every day. Among the participants, 23% of them used the Internet a few times a week, while 21% of them used the Internet a few times a month.

b. Data Collection Tool

The data collection tool was made up of two parts. The first part covered such personal information about the educational administrators as their years of seniority, gender and years of their Internet use. The second part included items constituting the Individual Innovativeness Scale. The Individual Innovativeness Scale developed by Hurt, Joseph and Cook (1977) on the basis of Rogers's individual innovativeness theory and adapted to Turkish by Kilicer and Odabasi (2010) was used. The scale was made up of a total of 20 items and four factors. The internal consistency coefficient of the scale was found as 0.87. The necessary written and oral permissions were taken for the application of the scale in the present study.

c. Data Collection and Analysis

The measurement tool was applied by the researchers to the educational administrators participating in the in-service training process. The items constituting the individual innovativeness scale of the measurement tool were five-point Likert-type items. While transferring these items into the computer environment, such scoring as "1 –I strongly disagree", "2- I don't agree", "3- I am not sure", "4- I agree" and "5- I strongly agree" was used. For the scoring of the scale as a whole, the scoring system of "Individual Innovativeness Score = 42 + (total scores of the 1^{st}, 2^{nd}, 3^{rd}, 5^{th}, 8^{th}, 9^{th}, 11^{th}, 12^{th}, 14^{th}, 16^{th}, 18^{th} and 19^{th} items) – (total scores of the 4^{th}, 6^{th}, 7^{th}, 10^{th}, 13^{th}, 15^{th}, 17^{th} and 20^{th} items)" suggested by Kilicer and Odabasi (2010) for the scoring of the scale items was used. For evaluation, the evaluation criteria presented in Table 1 were used (Kilicer and Odabasi, 2010).

Evaluation Range	Evaluation Criteria
80 and above	Innovator
Between 69 and 80	Early Adopters
Between 57 and 68	Early Majority
Between 47 and 56	Late Majority
46 and below	Laggard

Table 1. Evaluation criteria for educational administrators

In order to determine the educational administrators' individual innovativeness, such descriptive statistics as arithmetic means, percentages and frequencies were used. In addition, for the purpose of determining whether the educational administrators' individual innovativeness differed with respect to their professional seniority (less than 10 years, 10 years and more than10 years), independent sample t test was applied, and the analysis technique of one-way ANOVA was run to determine whether their individual innovativeness differed with respect to their Internet use frequencies (everyday, a few times a week and a few times month). The significance level of the data was taken as .05 for analysis. In addition, for the statistical analysis, the package program of SPSS 17.0 (Statistical Package for the Social Sciences) was used.

III. Findings

The results obtained for the evaluation of the educational administrators' individual innovativeness with respect to different variables are presented under the following headings:

a. The Educational Administrators' Individual Innovativeness

The educational administrators' individual innovativeness mean score produced by the Individual Innovativeness Scale was calculated as $\overline{X}$ = 71,54 and sd=9,24. It was also seen that the educational administrators were *leaders* with respect to individual innovativeness (69 ≤ $\overline{X}$ <80). In addition, the educational administrators' individual innovativeness frequencies are presented in Table 2.

	Levels of Innovativeness	n	%
1	Innovator	38	20,0
2	Early Adopters	81	42,7
3	Early Majority	62	32,6
5	Late Majority	9	4,7
8	Laggard	0	0,0
Total		190	100

Table 2. Distribution of educational administrators with respect to their levels of innovativeness

As can be seen in Table 2, a majority of the educational administrators considered themselves as *early adopters* (42,7%) and *early majority* (32,6%). In addition, 20% of them were found to be *innovator*. It was also revealed that only 4,7% of the educational administrators found themselves as late majority. Moreover, no educational administrator was found to be laggard.

The educational administrators' responses to the items of the Individual Innovativeness Scale were analyzed considering their innovativeness as either positively or negatively worded. The results of the analysis for the items in each group are presented in Table 3.

Positively Worded Items				Negatively Worded Items			
Item No	**Items**	$\overline{X}$	**sd**	**Item No**	**Items**	$\overline{X}$	**sd**
1	My friends ask me for suggestions or for information.	3,56	,731	**4**	In general, I am careful about adopting new ideas.	2,69	,983
2	I like trying new ideas.	4,24	,699	**6**	I am skeptic about new inventions and new thoughts.	2,22	,965
3	I look for new ways of doing a thing.	4,21	,694	**7**	I don't normally give importance to new ideas until I see the majority of people around me adopt these ideas.	2,20	1,07
5	While solving a problem, I mostly develop new methods of solving that question if the answer is not clear.	3,92	,700	**10**	I think I am one of the last among my friends to adopt a new thing.	1,84	,829
8	I believe I am an effective individual in my group of friends.	3,76	,786	**13**	I am reluctant to adopt new ways of doing a thing until I see these ways work.	2,29	,940
9	I find myself creative and genuine in my thoughts and attitudes.	3,92	,765	**15**	I believe it is best to have old way of living and to do things with the old methods.	1,83	,883
11	I feel myself creative.	3,79	,766	**17**	Before considering the innovations, I should see other people benefit from these innovations.	2,39	1,01
12	I like undertaking the leadership responsibilities of my group.	3,66	,950	**20**	I am mostly skeptic about new ideas.	2,27	,964
14	I find it exciting to be genuine in my thoughts and attitudes.	4,22	,763				
16	Uncertainties and unsolved problems are motivating for me.	3,75	,871				
18	I am open to new ideas.	4,39	,725				
19	Questions with unclear answers excite me.	3,85	,931				

Table 3. Educational administrators' individual innovativeness

As can be seen in Table 3, the educational administrators' responses to the positively worded items in the scale ranged from $\overline{X}$ = 4,39 to $\overline{X}$ = 3,56 for the positively items and from $\overline{X}$ = 1,83 to $\overline{X}$ = 2,69 for the negatively worded items. High means of positively items and low means for negatively items are important for revealing that educational administrators have tendencies to become innovators. In addition, the educational administrators reported themselves to be innovators with high means especially for such items as being open to new ideas ($\overline{X}$ = 4,39), enjoying trying new ideas ($\overline{X}$ = 4,24), looking for new ways of doing things ($\overline{X}$ = 4,21) and with

low means for such negatively items as believing it to be best to do things with the old methods ($\overline{X}$ = 1,83), being among the last to adopt new things ($\overline{X}$ = 1,84) and being skeptic about new inventions and new thoughts.

b. Educational Administrators' Innovativeness with Respect to Their Professional Seniority

The study also examined whether the educational administrators' innovativeness that had less than 10 years of professional experience and the educational administrators' innovativeness who had more than 10 years of professional experience differed. The results obtained are presented in Table 4.

Seniority	n	$\overline{X}$	Sd	df	t	P
Less than 10 years	74	71,93	9,06	188	.464	.643
10 years or more	116	71,29	9,38			

Table 4.Educational administrators' innovativeness with respect to their professional seniority

As can be seen in Table4, there was no difference between the educational administrators' Innovativeness and their professional seniority [$t_{(188)}$=0.464, p>.05]. The individual innovativeness scores of the educational administrators with less than 10 years of professional seniority ($\overline{X}$=71.93) and those of the educational administrators with 10 years or more of professional seniority ($\overline{X}$=71.29)were quite close to each other. It was also found out that the educational administrators in both groups could be said to be early adopters.

c. Educational Administrators' Individual Innovativeness with Respect to Their Internet Use Frequencies

In the study, the educational administrators' individual innovativeness was examined with respect to their Internet use frequencies. The results obtained are presented in Table 5.

Internet Use Frequency	n	$\overline{X}$	Sd	Standard Error
A- Everyday	107	74,22	8,45	0,817
B- A few times a week	43	68,55	9,30	1,418
C- A few times a month	40	67,57	9,00	1,423
Overall Mean	190	71,54	9,24	0,670

Table 5.The educational administrators' individual innovativeness scores with respect to their internet use frequencies

When Table 5 is examined, it is seen that the educational administrators' mean scores with respect to their individual innovativeness ranged between 67,57 and 74,22. In order to determine the difference between the groups, one-way ANOVA was applied. The results obtained are presented in Table 6.

Source of Variance	Sum of Squares	df	Mean Square	f	p (p<0.05)	Significant Difference
Between Groups	1782,167	2	891,083	11,592	,001	A-B,
Within Groups	14374,996	187	76,872			A-C
Total	16157,163	189				

Table 6.The results of analysis regarding the relationship between the educational administrators' individual innovativeness and their internet use frequencies

It could be stated that there was a relationship between the educational administrators' individual innovativeness and their Internet use frequencies (Table 6). The educational administrators' Internet use frequencies (everyday, a few times a week and a few times a month) influenced their individual innovativeness [F(2-187)=11,592, p<.05]. In other words, Internet use frequency was a predictor of individual innovativeness. The individual innovativeness mean scores of the educational administrators who reported that they used the Internet everyday ($\overline{X}$ = 74,22) were significantly higher than those of the educational administrators who reported that they used the Internet for a few times a week ($\overline{X}$ = 68,55) as well as those of the educational administrators who reported that they used the Internet for a few times a month ($\overline{X}$ = 67,57). With respect to individual innovativeness, individuals using the Internet everyday were in the group of *early adopters*(69 ≤ $\overline{X}$ <80) and those using the Internet for a few times a week and those using the Internet for a few times a month were in the group of *early majority* (67 ≤ $\overline{X}$ <68). Although the individuals using the Internet for a few times a week had a higher mean than those using the Internet for a few times a month, the difference in-between was not statistically significant.

IV. Discussions

Surry and Furquhar (1997) mention two basic perspectives regarding innovativeness such as determinism (developer-based) and instrumentalism (adaptor-based). Such determinist characteristics as being quick, guiding the society, becoming a leader in using the technology and doing renovations in the process of production are considered important for administrators in business life. Today, the current rapid changes are influential on all areas such as technology, marketing techniques, bilateral relationships and institutional structuring. In addition, it is important for administrators to keep up with these changes and shape the staff and the institutions taking the current innovations into consideration. It is also important for administrators to be innovators in the field of education (Brandon, 2008; ISTE, 2009).The present study investigated the educational administrators' innovativeness who are a part of the educational process and who inspect and help shape education. This study was conducted with 190 educational administrators from seven different geographical regions in Turkey.

The findings of the present study revealed that educational administrators were generally in the group of early adopters in terms of individual innovativeness. In addition, it was also found out that the frequency distributions of the educational administrators' individual innovativeness scores were early adopters (42,7%), early majority (32,6%) and innovators (20%), respectively. Of all the participants, only 4,7% of them considered themselves as late majority, while none of the educational administrators found themselves as laggards. When compared to Rogers's (2003) innovativeness categories, the educational administrators were found to be more innovative. The rate of innovators supposed to be 2,5% according to Rogers's theory was found as 20%; and the rate of early adopters supposed to be 13,5% was found as 42,7%; the rate of early majority supposed to be 34% was found as 32,6%; the rate of late majority supposed to be 34% was found as only 4,7%; and the rate of laggards was found as 0%. In another study, Hall and Elliott (2003) determined the faculty innovativeness scores. In the study, 3% of the faculties were found as innovators; 10% as early adopters; 35% as early majority; 35% as late majority; and 17% of the faculty were found as laggards. Depending on this, it could be stated that educational

administrators' innovativeness scores were higher than the faculty innovativeness scores. In addition, this difference could be attributed to the fact that the studies were carried out at different times. Considering the educational administrators' individual innovativeness scores obtained in the study, it could be said that the educational administrators were appointed depending on the exam results they had taken in Turkey. Successful teachers who teach for a certain period of time without being officially punished in any way take the educational administrators' exam. Those successful in the exam and appointed to the position of educational administrator take a number of related trainings (Boz, 2006). Flanagan and Jacobsen (2003) reported that school directors are leaders and that this leadership causes them to have difficulties in innovating themselves. In other words, it could be stated that administrative issues as well as the directives of the Ministry of National Education increase educational administrators' levels of innovativeness (Boz, 2006).

The educational administrators' individual innovativeness was examined with respect to their years of seniority. In related literature, the variables of professional seniority and age are reported to be influential on technology use (Reid et al., 2011; Chua, Der-Thang and Angela, 1999; Jegede, 2009). In addition, Hite, Williams, Hilton and Baugh (2006), in their study, found out that demographic information such as age and experience were related to administrators being perceived as innovative. Therefore, the present study investigated whether innovativeness changed with respect to professional seniority or not. However, no difference was found between the individual innovativeness scores of the educational administrators with less than 10 years of professional experience and those of the educational administrators with 10 years or more of professional experience. It could be stated that regardless of professional seniority, all the educational administrators had the same level of innovativeness.

In the present study, the influence of the technology use skill on the prediction of innovativeness was examined. For this purpose, the educational administrators' individual innovativeness was examined with respect to their Internet use frequencies. As a result, it was found out that the Internet use frequency was an important indicator of individual innovativeness. The educational administrators using the Internet everyday were early adopters and more innovative than those who were in the group of early majority using the Internet a few times weeks or a month. New technologies such as the Internet, mobile technologies, LED TVs are important tools used in determining innovativeness. This constitutes the basis of the innovativeness categories mentioned by Rogers (2003). Individuals' levels of innovativeness increase as they use technologies. In studies on ICT use, the Internet use frequency is reported to be the predictor of ICT use (Jegede, 2006; Jung, 2005; Sahin and Thompson, 2006). Consequently, it can be said that the ICT use frequencies of educational administrator increases, their level of individual innovativeness increases.

V. Conclusions

When the results obtained in the present study are taken into consideration as a whole, it is generally seen that almost half of the educational administrators were in the group of early adaptors with respect to their levels of individual innovativeness. In addition, it was revealed that the educational administrators' levels of innovativeness did not differ with respect to professional experience. Also, it was seen that as the educational administrators' levels of innovativeness increased in parallel to their Internet use frequencies.

The results that with respect to their innovativeness levels, the participating educational administrators were in the group of early adaptors and that their innovativeness levels did not differ depending on their professional experience could be considered important for the expectation that educational administrators are leaders in educational change. In addition, in related literature, it is reported that "manager characteristics influence the adoption of innovation" (Damanpour and Schneider, 2009). In other words, educational administrators constitute the source of human force that leads to spread of innovations into educational institutions and thus to educational change. Therefore, various in-service educational activities to be organized regarding innovation, innovativeness and creativity to increase educational administrators' levels of innovativeness could help them develop a perspective of innovativeness. According to another result obtained in the study, the educational administrators' more frequent use of ICTs could influence their levels of innovativeness. In addition, it is emphasized in literature that the innovative image of an

organization, individuals' perception of innovation and the duration of individuals' interaction with technology all influence their adoption or refusal of technological innovations (Brahier, 2006). Depending on this, it could be stated that one of the important variables that lead to educational change and innovation involves increasing and spreading the opportunities for educational administrators' use of technology.

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