



The effect of organizational affective commitment on adopter categories by hospital personnel in Turkey

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Abstract

The purpose of this study is to examine the potential relationship between the adopter categories, which are based on Roger's Diffusion of Innovation Theory, of healthcare personnel and their affective commitment to hospitals in Turkey. One hundred and forty-nine healthcare personnel from Adana Numune Hospital in the city of Adana, Turkey, were randomly surveyed. Chi-square analysis was carried out to test the research hypothesis that "there is no relationship between the adopter categories and affective organizational commitment". According to the test results, there was an association between the adopter categories and affective organizational commitment of the healthcare personnel. This study highlights important aspects of change management processes for healthcare personnel. It may help hospital managements redefine and reassess their current and future healthcare personnel regarding change resistance to Information Technologies (IT). This can consequently guide managers in the management of change process.

Keywords: Adopter categories, innovativeness, affective organizational commitment, healthcare, IT, diffusion of innovation.

Introduction

Organizations are expected to keep up with the new technologies to be able to cope with the steep competition in the internal and external markets, recent developments or bad economies in an era of globalism¹.

The new technologies require considerable investments in time and money, while improving staff performance. For example, hospital information technologies improve the performance of daily tasks in hospitals, such systems as Electronic Medical Records (EMR), which facilitate computer based patient graphics, and the editing, saving, and recovery of medical data. By this way, patient information can be quickly restored² and distributed to different units in the hospital, facilitating organizational communication and supporting clinical decision-making³.

One of the main purposes of using technology in the healthcare sector is to prevent medical errors. It should be borne in mind that small failures in human health can lead to human death. For example, patient information can be vital and may not tolerate any mistake. Thus, it is critical and beneficial for a hospital management to adapt to emerging technologies quickly.

Problem Statement and Hypothesis: Despite the importance of information technologies, it is not an easy task for healthcare organizations to switch to these new technologies. According to Beer and Nohria, 70% of all change projects failed⁴. For example 18% of IT projects are outright failures in the UK, In addition, 53% of IT implementations are challenged during implementation⁵.

The reasons for failure can stem from the organization, individual or the change/technology itself. Organizational reasons may vary from organizational structure and culture to inefficient management⁶⁻²⁰. On the other side, the reasons emanating from change or technology can be exemplified as the complexity, compatibility, cost or risk of change/ technology^{6,9, 10,13,16,18,20-25}. Furthermore, individual differences like social and educational level, skills, and perceiving have been suggested as examples of the reasons for failure of change projects^{6,8, 11,16,18,21,26, 27,28}.

One of the individual-based reasons is reaction to change. According to Zwick, these reactions do not harm the organization; however, they cause to the hold-up of the implementation of innovation in the organization²⁹. Indeed, the unsuccessful and untimely implementation of change leads both to costs and to the obstruction of the implementation of change by bringing about mobbing within the organization. Adversely, the successful introduction of change contributes to organization in decreasing the costs and achieving organizational goals truly and easily. This is possible through co-working towards the common aims of the organization within the organization. Gaining the personnel commitment of staff through taking their emotions and reactions to change/technology into consideration is one of the approaches to managing change processes, as Mdletye, Coetzee, and Ukpere state that positive emotions effect organizational change positively³⁰. Correlatively, Nafei emphasized the importance of organizational commitment of personnel in adopting change and found that the more committed the personnel to the organization, the more desire they have to engage in the change process³¹. Similarly, one of

the reasons of success of Japanese in organizational change is considered to be the commitment of personnel to their organizations³². In the light of the above views, it has been examined in this study whether affective commitment (AC) to organization differentiates from the adopter categories. Thus, we propose following hypothesis:

H₀₁: The adopter categories are not related with organizational affective commitment of healthcare personnel.

The aim and importance of the study: In the context of problem statement, the primary objective of this study is to investigate whether, or not, the organizational affective commitment of healthcare personnel influence the adopter categories. The second purpose of this study is to reveal the classification of the personnel according to the adopter categories.

The literature on the Diffusion of Innovation (DoI) has leant prevailingly towards the attributes of technology, individual differences, or some external variables such as competitiveness³³. Although some researchers, who discussed organization and management as an impact factor on the use or acceptance of technology, have dealt with organizational size and top management support in their studies, a few studies handled resistance of personnel to technology as a variable^{1, 23, 25, 29, 30}. Additionally, we have not come across with any study looking into organizational commitment in the area of DoI. Hence, this study provides a different insight both into the DoI and change management literatures concurrently.

Furthermore, it is useful for hospital managements to recognize their own personnel through the perspective of adopter categories. Having this information allows them both to determine the degree to which IT is accepted by the employees, predict possible reactions, and understand how far they are from their targets, as well.

Hereby, hospital managements could undergo the change processes well. Indeed, they can predict the personnel's distinctions in terms of their adaptability to change and notice their commitment levels. In this way, managements can develop new strategies that encourage the staff to participate in the change process and enhance their readiness before its implementation.

Theoretical Foundation: The personnel's adoption of changes is necessary for the introduction of newness in an organization seamlessly. Since each member of staff can react differently to change, it is essential to understand how staff's adoption level of new technologies can be enhanced. Many theories have emerged for a better understanding of these issues. Although the Theory of Reasoned Action (TRA) developed by Fishbein and Ajzen³⁴, the prevalent theories including Technology Acceptance Model (TAM) by Davis³⁵ and Theory of Planned Behavior (TPB) by Ajzen³⁶ have been used to estimate the

attitude of personnel towards the use of technology. Diffusion of Innovation Theory (DoI) by Rogers is about the diffusion process of newness via communication channels in a social system at a certain time²¹. The members of the system, who are either a unit or an individual, either accept or deny innovation. According to Rogers, the decision of acceptance of innovation depends on some factors, and he has categorized the members according to their acceptance decision with reference to some factors. Each category ranged under the relevant portion of the normal curve. For example, the 2.5% of the system members are named as 'innovators'. 'Early adopters' are the idea leaders, respected by their surroundings, and they possess the 13.5% of the members in the system. The next two groups are called 'early majority' and 'late majority'. These categories would rather wait and see before adapting to innovation and together constitute the 34% of the system. The last group is called 'Laggards', who usually deny change and have a share of 16% under the curve.

Rogers took the social, educational, economic, and demographic factors into consideration in the categorization of members²¹. However due to the time element, some other factors such as the emotional reactions of the members were also seen as influential on the acceptance of change. For example, Stam and Stanton observed employees for two weeks and found that morale and emotions together had an impact on job attitudes in the organization³⁷. Besides, innovative behavior has positive effect on the affective commitment but negative on continuance commitment³⁸. Organizational commitment was described by Meyer and Allen in three type namely affective commitment, continuance commitment, and normative commitment³⁹. Some authors argued that the staff would have more desire and willingness to exert effort for the given tasks that are related to broader innovative and creative tasks, take over responsibility, and empower other members of the staff if they have organizational commitment³⁹⁻⁴¹. In fact, organizational commitment has relation with the emotional reactions of personnel to the organization, meaning that they have organizational commitment to the goals and shared values of the organization. In the presence of organizational commitment, the output of the work performance occurs in the positive direction⁴².

Gladwell mentioned that patients did not complain about the doctors who they loved despite mistakes while more successful and skilled doctors were often sued by them. In this case, even if the education and quality of the doctors were at the same level, the reason of acceptance of the doctors was the relationship between the patients and doctors⁴³. On the contrary, the personnel who are weakly committed to their organizations either come to work late or don't come at all and also quit the firm occasionally⁴⁴.

Methodology

Data Collection: The survey was a paper-based questionnaire and 400 questionnaires were distributed to the healthcare

personnel in Adana Numune Hospital. One hundred and ninety-seven (197) questionnaires were returned. Forty eight (48) questionnaires were excluded due to incomplete and/or invalid answers. This left 149 questionnaires for the statistical analysis giving a return rate of 37.25%.

Measurement and data analysis: The innovativeness scale of Hurt, Joseph, and Cook (1977) was used for measurements⁴⁵. This scale is widely and particularly used in the social psychology literature. The scale consists of many items related to the desire and openness for trying a technology, and creativity, as well. First, the positive and negative items were calculated and then subtracted from each other, and the left over points indicated the level of innovativeness. The highest innovativeness level is expected to belong to the following groups: innovators, early adopters, early majority, late majority, and finally, laggards.

The validated scale with 6 items by Mowday, Steers, and Porter (1979) was used in order to measure affective commitment to organization⁴⁶. All items were rated by 5-point Likert scale with 1 being 'strongly disagree' to 5 being 'strongly agree'. The reliability of the both scales was measured through Cronbach's coefficient (α), and the coefficients for affective commitment and innovativeness were 0.759 and 0.892, respectively. Both values were over the cut-off value of 0.70, and thus, they were acceptable⁴⁷.

Using SPSS 21 statistical analysis software, Chi-square analysis was performed to test the hypothesis whether there is, or not, any relationship between the adopter categories and affective commitment.

Results and discussion

Adopter Categories: The levels of innovativeness are categorized by their total innovativeness points in this study. As seen in Table-1, four innovativeness categories emerged: i. early adopters, ii. early majority, iii. late majority, and iv. laggards but there was no pioneer. Table-1 reveals the different adopter categories of healthcare personnel according to their innovativeness. Most of the healthcare personnel were

categorized as early majority (61.1%), whereas the least were categorized as Laggards (7%).

The personnel in the group of early majority were three times more than the personnel in the group of late majority. Interestingly, there was no innovator among the respondents.

Descriptive Statistics: As can be observed from Table-2, the ages of the respondents vary from 18 to over 55. The most respondents' ages were between 25-34 years and only one personnel's age was over 55 years.

A total of 106 respondents were females (71.1%) while the number of males was only 43. The professions of the respondents included nurse (n=9, 6%), physician (n=116, 78%) and other positions (n=24, 16%). Most of the respondents were female physicians and belonged to the category of early majority and their age was between 25-34 (n=24).

Hypothesis Testing: Chi-square Test was used to analyze the existence of any connection between the category types and affective commitment of the healthcare personnel. The frequency distribution of the adopter categories according to affective commitment levels is shown in Table-3.

As can be seen from Table-3, all respondents had affective commitment to their organization at varying levels. Most respondents were in the early majority group and at the middle level of affective commitment (n=43). There was only one laggard and the affective commitment level of this respondent was low. However, each of the respondents, who was in the early adopter category, was at an excellent level of organizational affective commitment. Nearly 16% of the late majority group fell into excellent level of affective commitment, while the 20% of the early majority category was at that level.

The existence of any relationship between the adopter categories and affective commitment level can be inferred from Table-3 above, which demonstrates frequency distribution, and the results of the Chi-square test are listed in Table-4. Sixty five (42+23) of the total respondents were identified as affectively committed, whereas the number of uncommitted respondents was 16.

Table-1: Innovativeness Category of Healthcare Personnel²¹.

		Frequency	Percent	Valid Percent	Cumulative Percent	Expected*
Adopter Categories	Innovators	0	0	0	0	2.5
	Early Adopters	25	16.8	16.8	16.8	13.5
	Early Majority	91	61.1	61.1	77.9	34
	Late Majority	32	21.5	21.5	99.3	34
	Laggards	1	.7	.7	100,0	16
Total		149	100.0	100.0		

Table-2: The Sample Demographics of the Healthcare Personnel according to Their Adopter Categories.

Age			18-24			25-34			35-44			45-54			55+			
Profession			N	P	O	N	P	O	N	P	O	N	P	O	N	P	O	
Adopter Categories	Innovators	Male	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
		Female	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
	Early Adopters	Male	-	-	-	-	1	-	1	1	-	-	1	-	-	-	-	4
		Female	1	5	2	-	5	3	1	3	1	-	-	-	-	-	-	21
	Early Majority	Male	-	9	1	1	7	-	1	7	2	-	1	-	-	-	-	29
		Female	1	9	4	1	24	5	-	16	-	1	1	-	-	-	-	62
	Late Majority	Male	-	3	-	-	3	1	-	3	-	-	-	-	-	-	-	10
		Female	-	3	2	1	8	1	-	4	1	-	1	-	-	1	-	22
	Laggards	Male	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
		Female	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
		SUM	2	29	9	3	48	10	3	34	5	1	4	0	0	1	0	149

N: Nurse, P: Physician, O: Others.

Table-3: Frequency Distribution of Each Adopter Category.

		AC Level				Total
		Low	Middle	High	Excellent	
Adopter Categories	Early Adopters	4	14	7	0	25
	Early Majority	4	43	26	18	91
	Late Majority	7	11	9	5	32
	Laggards	1	0	0	0	1
	Total	16	68	42	23	149
	%	10.7%	45.6%	28.2%	15.4%	100.0%

Table-4: Chi-square (χ^2) Test Results

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	22.569 ^a	9	.007
Likelihood Ratio	22.571	9	.007
Linear-by-Linear Association	.149	1	.699
N of Valid Cases	149		

a. 8 cells (50.0%) have expected count less than 5. The minimum expected count is .11.

Table-5: Cramer's V Coefficient and Its Significance.

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by Nominal	Phi	.389			.007
	Cramer's V	.225			.007
	Contingency Coefficient	.363			.007
Interval by Interval	Pearson's R	.032	.087	.385	.701 ^c
Ordinal by Ordinal	Spearman Correlation	.039	.088	.475	.635 ^c
N of Valid Cases		149			

a. Not assuming the null hypothesis. b. Using the asymptotic standard error assuming the null hypothesis. c. Based on normal approximation.

Table-4 shows that the Chi-square (χ^2) value (22.569) presents a crucial information as the significance (0.007) clearly reveals. The significance of χ^2 value is smaller than 0.05 ($\chi^2 < .05$), which means that the hypothesis cannot be accepted. In other words, there is a relationship between the adopter categories and affective commitment level.

Phi correlation coefficient is used only in 2x2 contingent tables, whereas Cramer's V coefficient, which is an extended part of the contingency coefficient, provides the means to examine the relationship between two nominal scales with 'n' categories⁴⁸.

Cramer's V coefficient, which takes a value between 0 and 1, helps researchers to understand the degrees of relationship as well. A value of .00-.30 shows a weak degree of association, while a value of .30-.60 indicates a moderate association, and if this value is greater than .60, then there is a strong relationship⁴⁹. In this study, Cramer's V value was found as 0,225 showing a weak relationship.

Discussion: This study explains the adopter categories of the healthcare staff of Adana Numune Hospital by the degrees of their organizational affective commitment.

The study shows how the healthcare personnel of Adana Numune Hospital can be classified into adopter categories. It further determines the existence of an association between the adopter categories that the personnel belong to and their affective commitment to the organization. As a result, a weak relationship between both variables was found.

During the interviews in the hospital, it was emphasized by the one of the hospital manager that the hospital went through a lot of change, and that they thought of themselves as innovators as a result. According to the data analysis results, there were no innovators among the respondents, while according Roger's theory the expected percent of innovators was 2.5%. The innovators have a crucial role in the diffusion process due to

their opinion leadership talents. Almost half of the respondents (n=65) were affectively committed to their organization. As seen from Table-3, while the number of early adopters at high commitment level was only 7, 14 of them were at middle level. The most respondents were from the category of "early majority", their social statuses were over the average, and they were affectively committed to the hospital (43%) to a great extent.

The number of the personnel who were averagely committed was more than the number of the personnel who were both committed and uncommitted to the organization. Indeed, these groups are likely to be influenced by the averagely committed personnel due to their high population.

The commitment of the persuasive early adopters is crucial especially because of their influence on the other groups. Technology could diffuse quickly because of the communication among the peers of innovators. Similarly, the early majority are more likely to refuse change during the implementation and post-implementation phases of change, even if they could be convinced by the opinion leaders prior to the implementation of change. Likewise, one of the previous researches shows that opinion leaders were utilized by the pharmaceutical companies for the endorsement of new products with great success⁵⁰.

Additionally, this group plays a critical role in the diffusion process by conveying information from innovators to early adopters and the late majority. In fact, the late majority are suspicious of change usually until they see that half of the members of the system adopt change⁵⁰. On the other hand, researches show that the early majority willingly participate in the change process without any external pressure⁵¹. Hence, this adopters category must be ensured to commit and participate autonomously in the change process and this should be seen as a critical success factor of change management by the organization.

Another finding in this study is that the early majority was composed of female physicians whose ages were under 44 years. This is consistent with a previous study which found a significant relationship between gender and the adopter categories⁵². Indeed, this research is supported by a study which found that women adapt to change more rapidly than men⁵³.

Recommendation and Limitation: Consequently, the managers should exert effort to gain early majority, especially who are physician female and under age of 45, since they are majority and can have impact on the late majority category. They can also have an important part in the diffusion process due to their frequent interaction with peers. Indeed, about 44% of the late majority has more commitment than the others.

In the existence of hardly any researcher related to organizational commitment of innovative individuals, this study can contribute to research in a couple of areas. First, a new viewpoint like affective commitment has gained to define the adopter categories. Second, the hospital management can understand how their personnel can differ from each other with respect to affective commitment to them. Hence, they can be aware of the characteristics of their personnel and subsequently take some precautions before the enforcement of change.

Hospital managements should ensure the trust and commitment of their personnel not only for an easy transition of the change process, but also for their sustainable work performance. Otherwise, their most skillful personnel can be grabbed by powerful companies, as Pink stated that one of every ten jobs in the software and information technologies sector in the USA had shifted to abroad in 2008. And, he has seen it as a loss of work and pointed out that work loss could happen similarly in other countries like Japan, Germany or the UK⁵⁴.

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