EXAMINING THE INFORMATION SYSTEM MODEL OF COLLECTING MANAGEMENT ELECTRONIC STATISTICS AND ITS EFFECT ON IMPROVING ORGANIZATIONAL DECISION-MAKING

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ABSTRACT

The aim of the present study is to investigate the mode for collecting the management and statistical information electronically and its effect on organizational decision-making in West Azerbaijan Local Water Company. The study is applied and descriptive-survey. The statistical population comprises of 150 employers working at West Azerbaijan Local Water Organization. Based on the Cochran formula, the sample size is determined as 108 and the sampling method is that of simple random sampling. Researcher-made questionnaire constitutes the data collection procedure involving 17 items distinguished by gender, age, years of experience, level of education, major, and passing training courses in the field of information system of electronic statistic collection. Having determine the reliability and validity, the questionnaires were distributed among the participants. Descriptive and inferential statistics were used. To categorize and study the statistical data, descriptive statistics was used. To study the normality of variables, Kolmogorov-Smirnov test was employed. To test the research hypotheses, independent sample t-test and one-way variance analysis was utilized. The results indicated that there was no significant relationship between the level of education, major, as well as years of experience and using information technology for organizational decision-making; however, the relation was proved to exist between conducted trainings and using information technology for organizational decision-making.

KEYWORDS: statistic collection, electronic information, decision-making, West Azerbaijan Local Water Company

INTRODUCTION

Decision making is regarded as the core of the managers' activities in all their tasks. Managers choose their decison0making style based on different individual, organizational and environmental factors. Decision-making is one of the main processes within organization and is regarded as the main task of managers across different levels (Garvin, 2001, 333). Ferink and Kilmoski define responding as the known need for evaluating or defending the behavioral theory in contrast to the audience who have the power of punishment or rewarding. They claim that one can define organization as a set of expectations in line with common behavioral expectations (Amneter, Doughlas, Ferris, Goga, cited in Ataran, 2004, 115).

Information systems are the software programs which facilitate the collection, storing, retrieving, and controlling of information through the use of computers and information banks. More than 80% of the managers' daily affairs is spent by receiving information, establishing communication, and using the information. Since information is the basis for all activities of organization, one can say that there should be some systems which can generate and manage the information. The goal of such systems in to ensure true and confident information providing. Such systems are known as information systems (Khorshidi, 2003, 37).

Information technology

Information technology has to do with the establishment, collection, processing, storing, and delivery of information and processes which hare facilitated (Mohseni, 2003, 55).
Organizational decision-making
Decision-making includes the choosing process of an act in relation to one issue or opportunity (Badri *et al*., 2011, 63)

Related studies

Gorbani and Sedagat Sangani (2011) relying on the role of information technology in organizational efficacy in Mashhad municipality concluded that using each of the four sections of information processing system, namely,

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automation system, local networks, and main networks have significant effects on organizational efficacy since they are based on information technology. So, using information technology has a big part to play in the organizational efficiency.

Yahyavi (2011) examined the role of information systems in decision making of managers and found that there was a relationship between information systems and quality of product. Arvani Kashi (2014) examined the effect of information technology on improvement of managers' decision-making. Unknown effect of information technology on improvement of managers' decision-making led the researcher to investigate the issue. Known indexes of information technology were extracted according to the research framework model, review of literature, using the perspective of experts and supervisors. Later, questionnaire was developed and the related reliability was measured. Having collected the data, the researcher analyze the data using Kolmogorov-Smirnov test and regression test to study the effect of software, hardware, informing networks, and internet on the dependent variable. The results indicated that using information technology has a positive effect on improving the process of decision-making among the managers.

MATERIALS AND METHODS

The research followed a descriptive and survey design. The statistical population comprised of all 150 employers working at West Azerbaijan Regional Water Company and the questionnaire was distributed among 108 people. The questionnaire involved two types of questions. The first, determined by alphabetic coding to demonstrate the demographic attributes of sample size in terms of gender, level of education, years of experience. Second, to test the hypotheses are done. The afore-said questionnaire involving 17 items developed on Likert 5-item scale is prepared based on the views of experts and higher education professors.

Statistical data analysis

The sample size includes 86 male and 22 female employers. 108 employers are clerk and 7 of participants are managers. The number of participants under the 30 years of age, 30-40, 41-50 years of age, and more than 51 years of age are 16, 46, 33, and 13 people, respectively. It is worth noting that the number of people holding diploma degree, associate's degree, bachelor of art degree, and master of art degree are 4, 13, 52, and 39 people, respectively. Also, it was found that the number of years of experiences related to less than 5 years, 5-10 years, 11-15 years, 16-20 years, 21-25 years, and more than 25 years were 13, 20, 28, 18, 16, and 13 people, respectively. Also, it was perceived that the number educators in humanities, basic sciences and technical engineering were 35, 4, and 96 people, respectively. Finally, 35 people passed the training courses of information system of management electric statistic collection while 73 people had not taken part in the courses. There is a significant relationship between the level fo education and using information technology for decision-making

Since the level of education is a 5-compoent qualitative variable and that using technology for decision-making is a qualitative-interval variable, one-way ANOVA is used to make analysis.

Table 1. Descriptive statistics related to using information technology for decision-making based on the level of education

Level Of Education / Test	Number	Mean	Standard Deviation	Error
Diploma	4	64.75	9.46	4.73
Associates' degree	13	53.77	9.84	2.73
Bachelor of art	52	55.46	10.44	1.45
Master of art	39	51.18	11.41	1.83
Total	108	54.05	10.95	1.05

To evaluate the homogeneity of variances, Leven test is used.

Table 2. Homogeneity test of variances related to information technology for decision-making based on the level of education

Levene Statistic	Degree Of Freedom 1	Degree Of Freedom 2	Level Of Significance
0.448	3	104	0.719

Since the Levene test level of significance is greater than 0.05, variance equity is accepted. So, one can use ANOVA test.

Table 3. One-way ANOVA of using information technology for decision-making

Statistic / Using It	Sum Of Squares	Degree Of Freedom	Mean Of Square	F Statistic	Level Of Significance
Intergroup	883.942	3	294.647	2.565	0.059
Intragroup	11947.724	104	114.882		
Total	12831.68	107			

According to the obtained level of significance and statistic value (F=2.565) in ANOVA table, since the level of significance is greater than 0.05, null hypothesis is accepted. In other words, one can state at 0.95 confidence level that the research hypothesis is not significant at 0.05 level. This means that there is no significant difference between the level of education and use of information technology for decision-making.

Hypothesis 2: there is significant relationship between the major and use of information technology for decision-making
Since the major is a three-component qualitative variable and that technology use for decision-making is a qualitative-interval variable, one-way ANOVA is used to make analysis.

Table 4. Descriptive statistics related to use of information technology for decision-making considering the major

Test / Major	Number	Mean	Standard Deviation	Error
Humanities	35	55.14	11.36	1.92
Basic Sciences	4	62	10.98	5.49
Technical Engineering	57	23.23	10.40	1.38
Total	96	54.29	10.82	1.10

Leven test is used to evaluate the homogeneity of variances.

Table 5. Variance homogeneity test of using information technology for decision-making based on the major

Levene Statistic	Degree Of Freedom 1	Degree Of Freedom 2	Level Of Significance
0.280	2	93	0.756

Since Levene test level of significance is greater than 0.05, equity hypothesis of variances is accepted. So, ANOVA test is used.

Table 6. One-way ANOVA of using information technology for decision-making

Statistic / Using IT	Sum Of Squares	Degree Of Freedom	Mean Of Square	F Statistic	Level Of Significance
Intergroup	327.513	2	163.756	1.410	0.249
Intragroup	10804.321	93	116.175		
Total	11131.833	95			

According to the obtained level of significance and statistic value (F=1.410) in ANOVA table, since the level of significance is greater than 0.05, null hypothesis is accepted. In other words, one can state at 0.95 confidence level that the research hypothesis is not significant at 0.05 level. This means that there is no significant difference between the major pf participants and use of information technology for decision-making.

There is a significant relationship between held courses and use of information technology for decision-making

To compare the extent of using information technology for decision-making by people who have passed the courses and those who have not, independent sample t-test is used as follows:

Table 7. T-test results of two independent samples related to the comparison between use of information technology on decision-making regarding the course passing

	Passing The Course	Frequency	Mean	Standard Deviation	Levene F	F Level Of Significance	T Test	Degree Of Freedom	Level Of Significance
Using Information Technology	yes	35	59.48	10.40	0.302	0.584	3.784	106	0.000
	no	73	51.45	10.29					

As seen in the above table, since the homogeneity of variance is met and that the calculated t is significant at 0.01 level, null hypothesis is rejected and alternative hypothesis is accepted. In other words, one can conclude that there is a significant relationship between held courses and use of information technology for decision-making. As evident from the above table, this mean is greater for participants who have taken part in courses compared to those who have not.

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