

The relationship between the use of information technology and organizational learning and creativity of employees of Tejarat Bank (Case Study: Tejarat Bank of Shiraz)

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ABSTRACT

Objective: This study seeks to answer the question "Is there any significant relationship between the ICT knowledge and organizational learning and creativity of employees of the Tejarat Bank in Shiraz?"

Methodology: The research method is Correlational-Descriptive and the population is all employees of the Tejarat Bank in Shiraz, 597 people. Based on Cochran formula, the numbers of 234 people were selected through stratified sampling method. Data collection tools include information and communication technologies questionnaire, organizational learning questionnaire and creativity questionnaire. **Results:** Reliability were studied and confirmed through Cronbach's alpha (respectively 0.82, and 0.79 and 0.85). To test the hypothesis, Amos 21 and SPSS 20 software was used. **Conclusion:** According to the results, there is a significant relationship between information and communication technologies, organizational learning and creativity of employees of Tejarat Bank. And there is no significant difference between the use of information and communication technology among groups with different gender. But there is a significant difference among groups with different educational levels.

1. Introduction

Changes in technology have increased the speed of communications and organizations have been required to evaluate and respond to changing customer requirements. By studying the history of the emergence of large organizations in the past decades, we find that, due to lack of compliance of these organizations with the process of social and global changes, they don't have efficiency needed in competition, because large organizations with traditional structures don't have power and flexibility to align with the changes arising from globalization and its complexities and they are forced to restructure or equip themselves with the means to create the power needed for dealing with global developments to survive (Khalili araghi and Soltani, 2003). In the meantime, many organizations, including banks believe that the solution is increasing information technology capability and organizational learning and implementation of empowerment programs, and through applying this solution have tried to modify variables affecting people feeling by benefiting from empowerment staff, and taken measures to overcome internal and external obstacles, and create the context for education for empower employees. Organizational learning is a process and set of actions that lead to employee learning, and includes specific organizational behavior, which employees always try to apply what they have learned. In such organizations, all provided learning conditions for members. In such organizations, all learning conditions are provided for members. The concept of organizational learning, which dramatically from 1990 onwards was considered by many universities and industrial centers, is the result of two important factors: 1) The nature of the rapidly changing world in which we live and 2) Competitive environment in which organizations operate. Employees' empowerment is an essential management tool that can be used to guide human resources to increase productivity (Safari et al., 2007). If in the agricultural age, arm strength of people, and in the industrial age, Machinery were considered as important factors for survival, in the current changing era, that is the result of ICT, faster and better learning than rivals is considered as only source of organizations'

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power and survival. Because, learning is considered as the main factor and required for an organization that wants to be active in new economic world and competitive environment. Therefore, organizations such as banks have not been immune from changes in the present age, and should make prepare employees to face the changes through learning them, and to be able to adapt to the changes and challenges of today, they must institutionalize learning within their organization, and become a learning organization (Sharifi et al., 2012). Banks set the pulse of the economic life of a country by collecting deposits from people, businesses and companies, governments and others (and the allocation of resources to different economic sectors (Rezaei Rad and Vabazari, 2010). Use of ICT, which deals with collecting, organizing, storing and dissemination of data such as audio, video, text or numbers with the use of computer and telecommunications, is considered as a power source in the organization and an important factor in creating and maintaining organizational learning. In our era, to survive and thrive, and even maintain the status quo, the innovativeness and innovation in the organization must be continued to prevent stagnation and destruction organizations (Nejad-e Irani et al., 2010). Hence, the researcher plans to study this issue, "To what extent the new technologies and devices of communication and information are used by managers of Tejarat Bank in Shiraz to educate and promote organizational learning and employees' creativity, and finally, he has tried to rank the effective factors for the use of information and communications technologies.

"Organizational learning" is the process of finding and correcting errors and fixing them. Organizational learning is a process that occurs over time through the acquisition of knowledge and improving performance. According to scholars, one of the goals of creating context for organizational learning and development of learning organization is to promote and increase the level of creativity and innovation in organizations (Resta, 2002). The present study seeks to analyze the views of employees and reflect this issue that "How ICT can be used in organizational learning activities and creating creativity for the bank staff, and moreover, it is studied that "So far, to what extent information and communication technologies are used in the field of organizational learning and the promotion of creativity?"

The objectives of this study include the following:

- Study of the relationship between the use of information technology and organizational learning and employees creativity of Tejarat Bank
- Study of the relationship between the use of information technology and organizational learning in the Tejarat Bank
- Study of the relationship between the use of information technology and employees' creativity of the Tejarat bank

The present study is carried out in the spatial domain of Tejarat Bank in Shiraz during 2013-2014, which contains five chapters. In the introduction, the first chapter, we have tried to mention an introduction of the subject studied. The second chapter is dedicated to the research background, theoretical expression and its literature. The third chapter is dedicated to research methodology. The fourth chapter is devoted to the data analysis in this chapter and the findings are presented in the form of numbers. Conclusions and recommendations are discussed in the fifth chapter.

2. Materials and methods

2.1 Literature

Information and communication technology is one of the electronic means for storing and providing information electronically that is based on the number of outlets. Benefits and opportunities resulting from the development of information technology include: 1. Training efficient manpower 2. Training the entrepreneur manpower 3. Easy access to sources of information 4. Reducing organization costs as long-term 5. Updating of the administrative system 6. Retraining employees and managers and increasing their job skills and knowledge 7. Create an incentive for employees and effort and innovation 8. Reducing gap between the capabilities of manpower and services of the organization 9. The use of international experiences. Now, Tejarat Bank, with a capital of 45.700 billion Rials, and having 19,000 employees, and using new technologies to provide differentiated services to customers in more than 1,800 monetary and currency branches, having academic and professional credentials in the monetary and currency fields, as well as adherence to banking system based on legal principles and Islamic principles, is one of the largest commercial banks and most trusted international banks. The emergence of knowledge-based economy, and globalization of the economy has improved strongly this belief that sustainable competition requires that companies improve their performance in the international market through improving the performance, quality and reliability of their products, this requires the use of new technologies. Technology is composed of three interdependent components but these three components are equally important in creating technology.

- Hardware: physical structure and logical arrangement of equipment that are used to perform the necessary tasks.
- Software: knowledge how to use the hardware to perform the necessary tasks
- Brain ware: reasons for the use of technology in a particular way that it can be called technical justification.

In addition to the three components above, should be considered the fourth component, because this covers all levels of technological achievements:

- Technical knowledge: knowledge or technical skills used or learned about how to do things correctly, technical knowledge can be the result of experience and analysis, knowledge transfer or practice (Khalil, 2000).

To utilization of technology, IT management is required. IT management is system management which makes possible the creation, acquisition and deployment of technologies.

International cooperation is one of the bridges to reach technology. If these issues are not properly taken into account, not only can't help the technology transfer, but becomes an obstacle in the way. Technology transfer often requires the adoption of strategic decisions during formal contact with local companies and outside national boundaries. Greater participation in decision making, increasing the speed of decision-making, increasing speed to identify problems, reducing the height of the organization pyramid, improving coordination and increasing the expert staff, are just some of the effects that information technology and information systems have on some organizations.

Definition of information from the perspective of information and information technology science: Information and information technology science deals with information as data collected, stored, retrieved, processed and presented. In the above definition, issues such as reliability, quality and value of

information are considered. For information and communications technology, some experts (Lakshmi and Thirukodikaval, 1994) have considered the following factors as IT infrastructure, including education, hardware and software, telecommunications. Incentives for innovation are created in an organization when decision-makers pay attention to performance gaps, or realize that the status quo is not satisfactory. Some researchers argue that the investment appraisal process for IT is a process which is carried out at different points of time or continuously. This seeks the effects of the IT project in an explicit, quantitative and qualitative way (Rajabi and Shah Mohammadi, 2013). One of the main reasons for the success of the world's top organizations is to create and manage a personal relationship with each of customers. IT helps organization to consider the numbers of customers as its success index rather than market share and it leads to provide more and better products and services to customers (Dehghan and Mablighi, 2012). Learning is a process of relatively permanent changes in potential resulting from experience. But organizational learning is the process in which the organization learns and improves its performance over time, and it can achieve the desired objectives by upgrading and improving its ability. Factors affecting becoming organization to learning organizations show that at first, people should be aware of the organizational views and perspectives and make themselves aligned with it, then recognize the values and practices and solutions to organizational problems that must be taught and promote their ability in various ways, such as learning experiences, cooperation with other components, consultants, modeling of the premier organizations.

Organizational learning is a need for change towards sustainability. When it occurs once, it's relatively easy to identify, but while it is a process, it is difficult to achieve. Recent research introduces organizational learning as a process that has four main steps: acquisition of knowledge, the dissemination of knowledge, common interpretation and organizational memory.

In the step of the acquisition of knowledge, information may be derived from both internal and external sources. Developed internal information resources of essential learning are derived from the founder of the company, previous experience, and indirect learning is the implicit analysis of competitors activities in the market. The second step of organizational learning is the dissemination of knowledge throughout the organization. The process is performed through informal interactions (eg, department meetings, discussion on future needs and cross training) and informal interactions among the people. In the third step, the common interpretation analyzes knowledge from a global perspective. For this reason, reaching consensus on the concept of information and its implications for companies is a priority.

Being rich of communication tools improves common interpretation. However, in order to properly interpret the information, sometimes companies must be responsible for no learning processes. They need to question dominant mental models and knowledge stored, and refuse misleading and obsolete ideas and information that can lead to mistakes or poor decisions. In the fourth step, the idea of collective learning leads to another dimension of the concept of organizational learning, namely organizational memory. This structure provides all the collected knowledge of a company. The present study focuses on active memory (the memory which is among social networks) than passive memory that is dependent on computer information technologies. For this reason, the active memory determines that ultimately how the company should achieve its organizational goals. Organizational learning is not a fixed situation or a limited purpose, but is a continuous process of adaptation to environmental conditions and evolution, in which groups within the organization are encouraged to develop skills, knowledge and consensus about the destination. According to the Figueiredo (2002), learning in organizations has four sub-process of knowledge acquisition from outside the organization, the acquisition of knowledge within the organization, and turning knowledge into public knowledge and to encrypt and development of knowledge. Chu (2008) notes that, facilitators of organizational learning are of interaction and communications between team members, job rotation and experience, interaction and communications, including state, direction and frequency of information flow between members of the group and experience real exchange among Member refers able to change jobs (Chu, 2008). Occupational group and experience refers to the ability to real exchange among members (Chu, 2008). However, effective organizational learning requires several skills, i.e., these skills promote the personal capacities to learn more efficiently and better, as follows: 1. systems thinking, 2. Mental models 3. Personal mastery 4. Self-learning 5. Dialogue. Apart from these skills, it should be noted that the barriers also involved in organizational learning which make difficult learning by the organization's staff, which some of them are discussed in the following. Adopting a top-down management style, ineffective and poor managers, poor vertical communication, lack of coordination between departments, units and weak leadership skills and underdevelopment at low levels. Senge suggests five principles for organizations to become learning organizations which is studied in this study, as follows: (1) personal skills necessary condition for learning organization is learning ability its members, this doesn't provide a guarantee for the creation of such an organization, but without it, there will not be certainly inclusive organization. (2) Mental Models: Mental models lead to process knowledge of trends and perceptions which have impacts on thinking and reflection. People can achieve more ability to manage activities and decisions by talking and continuous reflection and considering internal images. (3) Shared Vision: Shared vision motivates common goals. People learn that by developing a common image about the future expected, principles and practical ways to achieve it, make a commitment in their group or organization, and are committed to its values and norms. (4) Team Learning: Teams have changed its collective mind through sophisticated techniques such as dialogue and negotiations, and learn that must mobilize their energy and power to achieve common goals, and achieve the ability and insight more than the total capacity of members. (5) System Approach: People with systems thinking learn to better understand change and continuity and have an effective impact on the forces that shape their outcomes. Creativity in the organization has role and effects such as increasing the quality of solutions for stimulation and promotion of innovation problems, increasing motivation and commitment in the organization, and increasing the effective performance of teams. Such a vision of the future guides us towards knowledge of creativity and developing it in the organization.

Amabile (1989) provided a model for the causes of creativity, as Figure 1.

Azari and Taghvai Yazdi, (2014) investigated the relationship between information and communication technologies and the organization of education in the Mazandaran province. The population was all employees of the organization of education in the Mazandaran province, 320, and 175 samples were selected by Morgan table. In collecting the data, library and field methods were used. The results showed that with a confidence level of 99%, there was a significant relationship between information and communication technologies and organizational learning, participatory leadership, systems thinking, knowledge sharing, group learning, shared vision and development of personnel competence in the Organization of Education of the Mazandaran province, and there was a positive and direct correlation between variables.

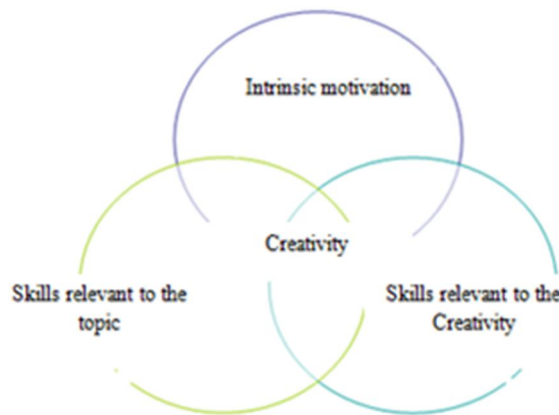


Figure 1. The causes of creativity (Amabile, 1988)

Rezaei Rad and Vabazari (2010) examined the relationship between the use of information technology and organizational learning in Gilan province's police commander. The method of the study was a field method, and the population consisted of Police personnel in Gilan Province in 2012, and multi-stage cluster sampling was used. The results showed that, there is a significant positive relationship between the components of information technology and organizational learning. Imam Verdi and Ghahramani (2013) began a study on the relationship between information technology and creativity of the teaching staff in schools. The research method was descriptive- correlational, and population was all managers and teachers of boys' high schools in Khoy city, 270 people. Of this, 140 samples were selected so that, 40 administrators were chosen by using census method and 100 teachers were selected by simple random sampling.

The regression results showed that, IT systems, with a coefficient of beta 0.546 and with a coefficient of beta of 0.515 had positive impact on the creativity of teachers and administrators, and are considered as predictors of creativity.

Sharifi et al. (2012) studied the role of ICT in the profitability of banks. According to the results, there is a positive correlation between ICT and the profitability of banks in Nigeria. Sharifi et al. (2012), studied the role of ICT in enhancing the learning process in primary and secondary schools, and showed that the spread of information technology in education is in favor of the teaching and learning process. According to research literature, we can now consider the conceptual model in Figure 2:

The study population is all Tejarat bank employees in the Shiraz city, 597 people. Sample is a subset of society that its members form part of the society, so that the characteristics of the sample group members are representative of the larger community. The sample size is calculated by the following Cochran formula:

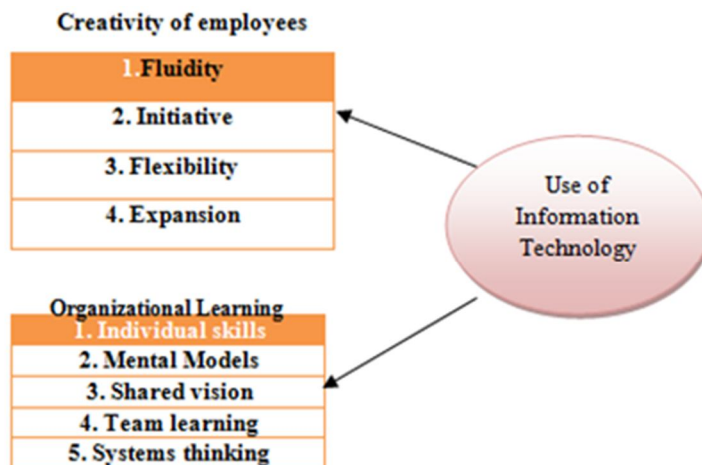


Figure 2 - conceptual model of study

$$n = \frac{\left[Z_{\frac{\alpha}{2}} \right]^2 \times p \times q \times N}{(N - 1) \times \epsilon^2 + \left[\left(Z_{\frac{\alpha}{2}} \right)^2 \times p \times q \right]} \quad (1)$$

In the above formula, usually, the maximum permissible error (d) is considered equal to 0.05, reliability 0.95, $1.96 = z$ and p values and q , respectively 0.5 and 0.5, the population size = N . P values is considered equal to 0.5. Because, if $0.5 = P$, n will be equal to possible maximum value, and this causes the sample is large enough. Based on current population size, sample rate based on the Cochran formula was estimated 234 people. Given that, it is a field and applied research, therefore, to gather information, the following two methods were used.

1. Method of analysis of documents: In this study, first, theoretical and literature were developed by reference to library resources, and the use of online databases of search engines, and taking notes of relevant documents, books, articles and dissertations.

2. Field Method: In this method, after distribution of the standard questionnaire among sample, the required information is collected.

The main tool for collecting data in this study is a standard questionnaire. All questions with Likert 5-point scale, which included the options of "very low" to "very high", were examined. In this study, the analysis of material test was used to determine the validity. Analysis of material is based on the assumption that, overall test measures the subject studied, if any of the statements of the whole have a significant relationship with the whole score, the items also measures the subject, but if the item does not have a significant relationship with the whole score, the item does measure the subject, and should be removed, High Pearson correlation coefficient shows that there is high correlation between what each question measures with what is measured in the whole. The results of the analysis show that, the items are correlated with the total score, and there is no need to remove the items, and the validity is confirmed.

In order to assess reliability, a prototype, including 30 pre-test questionnaires was distributed, and then using the data obtained from the questionnaire, the confidence factor using Cronbach's alpha coefficient was calculated using SPSS software, the criteria for decision-making about Cronbach's alpha have suggested as follows: 45% as low, 75% as moderate, 95% as acceptable value. In this study, Cronbach's alpha coefficient is calculated using SPSS software, the original items are presented in Tables 1, 2 and 3.

Table 1. Cronbach alpha coefficient for learning Organizational questionnaire

Variable	The number of questions	Cronbach's alpha
Personal skills	6	0.85
Mental models	6	0.75
Shared vision	4	0.77
Team learning	4	0.77
Systems thinking	4	0.80
Total questionnaire	24	0.79

Table 2. Cronbach alpha coefficient for creativity of employee questionnaire

Variable	The number of questions	Cronbach's alpha
Fluidity Creativity	10	0.79
Employees Initiative	10	0.82
Flexibility	10	0.84
Staff development	10	0.81
Total questionnaire	40	0.85

Table 3. Cronbach's alpha coefficients for information and communication technology questionnaire

Variable	The number of questions	Cronbach's alpha
Use of communications And information technologies	28	0.82

3. Discussion and results

3.1 Data analysis

In this section, we review the results and statistical analysis of data collected. First, the descriptive results of the variables, and then the results of analysis which have been conducted to examine the questions and assumptions, are discussed. It should be noted that the analysis is done using SPSS 20 software and AMOS 21. To analyze the data, at first, the information is encoded, and was transferred to a computer through SPSS software. Data analysis was conducted in two parts of descriptive and inferential statistics. In the descriptive statistics, the data was described and graphs, frequency tables and indicators such as mean and standard deviation was used to summarize data. In the research statistics section; the analytical methods, and correlation coefficient statistical test, simple and multivariate regression, t-test and ANOVA were used to test hypotheses.

3.2 Demographics

In this section, we discuss demographic information.

- Population
- Age
- Level of Education
- Work experience

Population consisted of 78 women and 156 men, that most people were in the age group of 30 to 40 years, and the lowest people were in the age group of more than 50 years. The most people had bachelor's degree, 101 people, and lowest group had master's degree, 15 people. Most work experience was related to the age group between 5 and 10 years, and the minimum work experience was related to the age group more than 20 years.

3.3 Descriptive findings

To study the descriptive information, mean, standard deviation and minimum and maximum score for variables of the present study were examined and the results are presented in Table 4.

3.4 The analytical results of research

In this study, the confidence coefficient of 95% is intended, in other words, the margin of error of 5% is anticipated in calculating the results.

Before determining the appropriate statistical methods to analyze, the hypothesis of normality of observations is examined by using Kolmogorov-Smirnov statistic. If the observations do not follow a normal distribution, non-parametric methods were used for statistical analysis.

Table 4. The descriptive information of results

Variable		Average	Standard deviation	The minimum score	The maximum score
Information Technology		3.53	0.58	1.75	4.75
Organizational Learning	Personal skills	3.14	0.63	1.20	4.80
	Mental models	3.14	0.63	1	4.81
	Shared vision	3.54	0.58	1.75	4.75
	Team learning	2.96	0.69	1.28	4.80
	Systems thinking	3.14	0.64	1.2	5
	Total	15	53	70	45
The creativity of employees	Fluidity Creativity	2.70	0.69	1.13	4.38
	Employees Initiative	3.14	0.63	1.20	4.80
	Flexibility	2.95	0.69	1.28	4.8
	Staff development	3.06	0.65	1.40	4.80
	Total	2.96	0.46	1.77	4.45

Table 5. The Kolmogorov-Smirnov test

Variable	Significance level
Information Technology	0.062
Personal skills	0.087
Mental models	0.085
Shared vision	0.054
Team learning	0.058
Systems thinking	0.076
Organizational Learning	0.371
Fluidity Creativity	0.414
Employees Initiative	0.090
Flexibility	0.061
Staff development	0.098

According to Kolmogorov-Smirnov test results, as shown in Table 5, and the significance level of observations for each variable is more than 0.05, so, for the sub-scale observations follow a normal distribution.

3.5 Analysis of the hypotheses

The main hypothesis 1: "Use of ICT technologies predicts creativity of employees of the Tejarat Bank."

According to the results of the respective sub-hypotheses, it can be seen, there is a significant relationship between the use of ICT technologies and creativity of employees, so, the model fitness using a multiple regression to examine the first hypothesis is shown in the table 6. In Table 6; β is a standard coefficient, which indicates the impact of predictor variable on criterion variable related to it. If the value of significant level of influence of each predictor variables on criterion variables is less than 0.05, the effect is significant, which has been shown in the table, and given that, the significance level is less than 0.05, so significance of the regression model is confirmed.

Table 6. Multivariate regression of variables in the study

Significant	Significance level of the model	Sample error	Significance level of the relationship	Impact effect β	Predictor variable	criterion variable	hypothesis
OK OK OK OK	0.000	0.077 0.058 0.068 0.063	0.017 0.000 0.000 0.000	0.184 0.639 0.599 0.598	IT IT IT IT	fluidity creativity employees' initiative flexibility staff development	First hypothesis
OK OK OK OK OK	0.000	0.059 0.058 0.007 0.068 0.059	0.000 0.000 0.000 0.000 0.000	0.634 0.638 0.997 0.598 0.632	IT IT IT IT IT	Personal skills Mental models Shared vision Team learning Systems thinking	Second hypothesis

In addition to considering the fluidity creativity, employees' initiative, flexibility and staff development as a criterion variable in the first hypothesis, the total score of the four measures was considered in a separate analysis as dependent variable and the effect of use of ICT technologies on total score of creativity of employees is also examined in Table 7.

Table 7. Regression of the use of ICT technologies on the total score of creativity of employees

The criterion variable Predictive variable	The total score of creativity of employees		
	R ²	β	Significance level
Constant	0.399	1.18	0.000
Information Technology		0.505	0.000

Based on the results from Table 7; R² is the rate of change expressed of the criterion variables by the predictive variable. Use of communications and information technologies as a significant predictor for fluidity creativity, employees' initiative, flexibility and staff development (the values of significance level is less than 0.05), as well as the use of ICT technologies could be considered as a significant predictor of total score of the staff's creativity. As a result, according to the values obtained, β is positive, use of communications technologies has a positive relationship with employees' creativity. The second hypothesis: "The use of ICT technologies predicts organizational learning in the Tejarat bank."

According to the results of the respective sub-hypotheses, it is showed that there is a significant relationship between the use of ICT technologies and subsets of organizational learning, so, the model fitness was using a multiple regression to examine the second hypothesis in the table 6. In Table 6; β is a standard coefficient, which indicates the impact of predictor variable on criterion variable related to it. If the value of significant level of influence of each predictor variables on criterion variables is less than 0.05, the effect is significant, which has been shown in the table, and given that, the significance level is less than 0.05, so significance of the regression model is confirmed.

In addition to take into account individual skills, mental models, shared vision, team learning and systems thinking as a criterion variable, total score of these four scales in a separate analysis was considered as a criterion variable, and the effect of use of ICT technologies on the total score of organizational learning was studied.

Based on the results from Table 8; R² is the rate of change expressed of the criterion variables by the predictive variable. Use of communications and information technologies as a significant predictor for individual skills, mental models, shared vision, team learning and systems thinking (the values of significance level is less than 0.05), as well as the use of ICT technologies could be considered as a significant predictor of total score of the organizational learning. As a result, according to the values obtained, β is positive, use of communications technologies has a positive relationship with the organizational learning.

Table 8. Regression of the use of ICT technologies on the total score of organizational learning

The criterion variable Predictive variable	The total score of organizational learning		
	R ²	β	Significance level
Constant	0.529	0.797	0.000
Information Technology		0.667	0.000

The third hypothesis: "There is a significant difference between the use of ICT technologies among groups with demographic characteristics including gender and educational level."

A. There is a significant relationship between the use of ICT technologies and gender.

To test this hypothesis, independent t- test was used. Table 9 shows the values of the test.

Table 9. The results of t –test, the use of ICT technologies among groups of women and men

Variable		The significance level of Levine	The significance level of Independent t-test	Confidence interval	
				Lower limit	upper line
Use of communications and information technologies	Equal variances	0.477	0.505	-0.105	0.213
	Unequal variances		-	-	-

By comparing the level of significance of the Levin test with a margin of error of 0.05, it can be concluded that the variances of both women and men are equal, so the significance level of independent t- test with equal variances, is 0.505. Given that this amount is more than 0.05, there is no significant difference between the use of ICT technologies in the two groups, and the hypothesis is rejected.

A. There is a significant relationship between the use of ICT technologies and educational level.

To test this hypothesis, one-way ANOVA was used. Table 10 shows the results.

Table 10. ANOVA test results for the use ICT technologies at different levels of education

<i>Changes Source</i>	<i>sum of squares</i>	<i>Statistics F</i>	<i>Significance level</i>
<i>Intra-group</i>	0.641	0.627	0.008
<i>Intergroup</i>	78.41		
<i>Total</i>	79.05		

As can be seen, the level of significance of the test is less than 0.05. Therefore, the rate of use of ICT technologies in different educational levels is different.

4. Conclusion

4.1 Conclusions and future works

4.1.1 Results

The study has examined this issue that "To what extent the new technologies and devices of communication and information are used by managers (case study: Tejarat Bank in Shiraz) in order to educate and promote organizational learning and employees' creativity? In the fourth section, the accuracy of the hypotheses of this research is discussed. In the first hypothesis analysis, result analysis using multivariate regression model shows that the use of ICT technologies in the multivariate regression model can measure the changes in sub-scales of fluidity creativity, employees' initiative, flexibility and staff development. And also after calculation of the total score of creativity and simple regression model fitness, it was concluded that the use of ICT technologies is able to measure the changes in employee creativity. In the second hypothesis analysis, result analysis using multivariate regression model shows that the use of ICT technologies in the multivariate regression model can measure the changes in sub-scales of individual skills, mental models, shared vision, team learning and systems thinking. And also after calculation of the total score of creativity and simple regression model fitness, it was concluded that the use of one-way ANOVA shows that the average use of communications and information technologies at different levels of diploma, associate degree, bachelor's and master's degree is not the same. And educational level has an impact on the use of communications and information technologies.

4.1.2 Future works

Creating and providing a suitable context for the establishment of IT systems in banks is an effective factor to create and nurture creative thinking of the employees in the banks and IT system with emphasis on new models of e-Learning is considered as an effective factor to encourage employees and increase creativity and unusual and new ideas in employees and managers. Considering that information technology is the engine of growth and leads to increase organizational learning in organizations, in general, training can play a vital role in this regard. Given that, there is a significant relationship between the use of ICT technologies among groups with different educational levels, it is suggested that the issue be considered at the time of employment.

4.1.3 Recommendations for future projects

1. Evaluation of implementation of information technology systems in other industries.
2. Explanation and Analysis of the IT priorities using ranking techniques
3. Examination and explaining the adoption of information technology by customers
4. Training inventive employees, and employees who have the new ideas
5. Continuous learning of staff
6. Encouraging colleagues in the field of learning and creativity
7. Educational facilities through video conferencing, virtual learning ...
8. Participatory Management
9. Holding training workshops
10. Creating the right culture for the optimal use of information and communications technology

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