INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES

Vol 4, Issue 7, (2014) E-ISSN: 2222-6990

Technology Competence with Process Approach and its Relationship with Group Learning in Service Organizations

Rostam Nabizadeh[1], Mohsen Jokar[2], Ali Dashtizadeh[3]

[1]MA Student in State Management, Organizations and Methods, Sistan and Baluchestan University, Zahedan, Iran

Email: Rostam_2392@yahoo.com

[1,2]MA Student in State Management, Entrepreneurship, Sistan and Baluchestan University, Zahedan, Iran

Email: M_jokar11@yahoo.com

DOI Link: http://dx.doi.org/10.6007/IJARBSS/v4-i7/983

Published Date: 02 July 2014

Abstract

The present study evaluated the effect of process-based technology competence and its dimensions on group learning and also investigated the relationship between two variables in good consistency process of service organizations with environment and society. After determining reliability and validity, for data collection, Lall (2001) technology competence and Neefe (2001) group learning questionnaires were applied. The study population was all the employees of water and Wastewater Company, regional water company and regional electricity company of Sistan and Baluchestan province. The sampling method was based on stratified as the employees with above associate degree were chosen and after distribution of questionnaire, the numbers of questionnaires being returned were 149 in three populations. After data analysis by SPSS 19 and Lisrel and regression statistical coefficient and Spearman correlation coefficient, it was found that there is a positively significant association between process-based technology competence and group learning. There is a positively significant association between three dimensions of process-based technology competence (investment competence, production competence and communicative competence) with group learning.

Keywords: Technology competence, Investment competence, Production competence, Administrative competence, Group learning

Introduction

Today, technology and its changes are turned into one of the most important elements of organization strategic environment. Some of the researchers believe that technology outcomes in economic, social and even political systems are more important than technology changes. This goal led into the development of scientific knowledge in technology

management (Heidarie et al., 2013). Continual changes of technology are seen as the pre-requirement of competitiveness and survival in the current world competition. In the late 1950, Robert Solo stated that 87.5% of productivity improvement can be explained by technology changes and only 12.5% are justified by economic growth (Azadi Yazdi and Mosavi Madani, 2009). This issue shows that technology is applied in two levels of improvement, in gradual improvement of management and deep changes in processes (Grami and Nour Alizade, 2008, 126). In the current world, business environments are faced with various challenges as wide internal and external organizational interactions. The organizations managers need to control the affairs fast with more precision. The routine interactions of organization and information exchange volume in intense work courses are increased as following them manually and traditionally are out of the scope of human resources ability and it is faced with many problems (Dadmehr, 2010). Thus, technology ability directly affects organization productivity improvement (Jonker et al,2006). It can be said using technology in organizations should be based on some of scientific and coherent studies as using technology without any association with the organizational performance and don't meet the environmental and organizational demands is not competitive tool and it also leads to organizational decline (Lotfollahi Haghi, 2010). Simply, a company with competitive advantage can control its competitors for a long time. For example, via innovative use of IT and other strategic innovations, Wall Mart Company was recognized as the greatest retailer in the world during 1990 to 2000 in terms of financial performance. It can be said that Wall Mart had a sustainable competitive advantage during this period. The reason that the companies with competitive advantage are profitable with more growth is that they can absorb more share of market (Rothaermel, 2008). Thus, one of the important components in economic growth and welfare of countries in the world is technology competence of the countries and various countries in the world attempt to increase their technological competence level (Tabatabayian et al., 2010). Jong Kok Hune, top deputy of Samsung stated regarding technological importance of the organization as: We should take an example of the past like a lizard his head is cut. They faced some barriers that traditional view of hierarchy of Confucius caused it. By eliminating the barriers and increasing investment in development and research, he could achieve net income of 10 billion dollars in 2004. Samsung was at first a low income Korean company but after some years was the main competitor of some companies as Sony, Panasonic. What caused Samsung is turned to one of the three best companies in the world in its own filed and increase innovation and performance? The factor that caused Samsung company progresses in serious competitive environment is using unique technology (Khoja, 2008). Base technology of the companies play important role in socio-economic development of the countries. Also, it helps the innovation in products, creating job opportunities and stimulating science and technology process in society (Moraes et al., 2010). Sengeh believed that teams not people are the basis of learning in modern organizations. The team members achieve important results and these results lead to organization development (Beikzade and Fathi Banayi, 2012, 87).

A review of literature and theoretical framework

Technology competence

Human being in facing with the surrounding environment problems is faced with two main approaches: Technology approach and behavioral approach. The philosophy of the first approach is based on change in nature via creating various artifacts as shelter, barrier and etc. The foundation of the second approach is based on consistency power of the human being

(Ghazinouri, 2004, 5). The technologies have specific social construct and affect as infrastructure in organizational life and all organization elements, the organization design and structure, policies, strategies, plans, trend and processes (Vordinejad et al., 2009). Tecnology competence development is one of the effective methods in improving competitive performance of enterprises. The researches showed that technology as the practical application of knowledge and experience to meet the demands of human being had important role in economic and industrial development of the countries and achieving competitive advantage of the enterprises (Dastjerdi et al., 2010). As in politics, countries are divided into advanced, developing and third world, from technological aspects; the companies are based on the following classification. In recent decades, some developing countries as Korea, Singapore and China considered some strategies to reduce technological distance with advanced countries and this led to their relative success in global competition field. It seems Iranian companies should apply one of the strategies or similar group for technology competence development and reducing this distance. Otherwise, the weakness of technology leads to failure in achieving companies to competitive strategy (Ahmadi and Eliasi, 2002). Technology capabilities are the result of technology learning. In this process, the company achieves organized knowledge (for example the knowledge that is considered in the existing technology), in the next stage, this knowledge is combined with existing tacit knowledge. Indeed, this process is time-consuming, costly, informed and purposeful **(**Diez and Berger,2003). Kim (1997) considered three dimensions of technological competence as production competence, investment competence and innovation competence (Tabatabayian et al., 2010). Park et al. (2007) defined three dimensions of technology, human resources and communication for organizational technology. Thus, based on process-based approach, technological competence is a various set of abilities that companies consider necessary for acquiring, digesting, application, consistency and creating technology. As it was said in technology competence issue, the mentioned processes by Sanja Lall 1992 had good comprehensibility to evaluate technological empowerment of organizations. Sanja Lall (1992) considered three main dimensions of investment competence, production competence and communication competence and each have specific processes. Investment competence is the skill required to identify, prepare, achieve technology, create, equip, employees and development. Production competence includes simple skills as quality control, production and maintenance to complex activities as consistency, development and etc. and research, design and innovation requirements. Finally, communication competence is the skill to transfer information, technological skills and receiving them from the providers, consultants, contractors and etc (Naghizade et al., 2013).

Group learning

Learning in organization is occurred in three levels: Individual, group and organization. The organizations following organizational learning didn't restrict learning only to one level and develop encouragement and maximum learning in each level of development. Although learning is individual but it is occurred in organization via collective process and it is considered a social process (Nadi et al., 2011).

According to Sengeh and other theorists, group learning is the second learning level. Group learning means the teams can think as a unified advantage, create something and learn it. Group learning is like a bridge transferring individual knowledge to organizational knowledge (achieved by all people)(Rahmati et al., 2011). Working systems should be as a live creature in thinking, creation and effective learning. Team learning needs the three elements:

- The need to following complex issues via collective vision
- The need to innovative and coordinated measurement
- The ability of encouragement and motivating learning in other systems

Sengeh 1990 considered the first major component for team learning as speech but three conditions are considered for achieving in speech:

- ✓ All participants should ignore their concepts
- ✓ All participants should observe each other as co-worker
- ✓ A person as facilitator should start the discussion (Emadzade et al., 2009).

Learning is occurred by better work intention. By participating in work trend, the employees can learn their experienced co-workers. When learning is done by innovation aim, the goal is not helping the employees in their current works but it is adding the value of work and work trend is like learning process (Kessels, 2001).

Review of literature

This study is innovative and by investigating various scientific and research resources, no researcher is considered to the issues in Iran and abroad. To be familiar with the researches, some of the researchers close to the main subject are considered:

According to Wang & Zhou Z. (2013), the dual role of local sites in assisting firms with developing technological capabilities: evidence from China found that local sites increased their capacities by technology empowerment. Using technology competence by research plans creates collaboration of these organizations with research institutions and Universities and collaboration with industrial society companies. In a research done by Ramos et al., (2012) Technological distinctive competencies and organizational learning and its effect on organization innovation to improve organization performance analyzed the effect of technological skills,:, technological distinctive competencies and organization learning. This study also investigated the effect of Technological distinctive competencies and organizational learning on organizational innovation to improve organization performance. The results of the study based on a sample 201 companies in Spain showed that 1) top management support has positive effect on technology skills, technological distinctive competences and organizational learning and 2) Technological distinctive competences and organizational learning have positive effect on organizational performance directly or indirectly via organizational innovation.

In a study done by Cesaroni et al(2012) titled “technological capability and costs productivity as the introduction of entering the foreign markets: we investigated the effective factors on entering international markets. These researchers analyzed the total population of pharmacological companies of Spain during 1995 to 2004. The results of the study showed that the companies can increase the entrance to foreign markets by following competitive strategies as using technological empowerment and maximizing costs productivity.

Study conceptual model

After defining theoretical basics and review of literature, the conceptual model of the study is presented (Figure 1). The dimensions of technology empowerment variable based on Lall process view (2001) are considered.

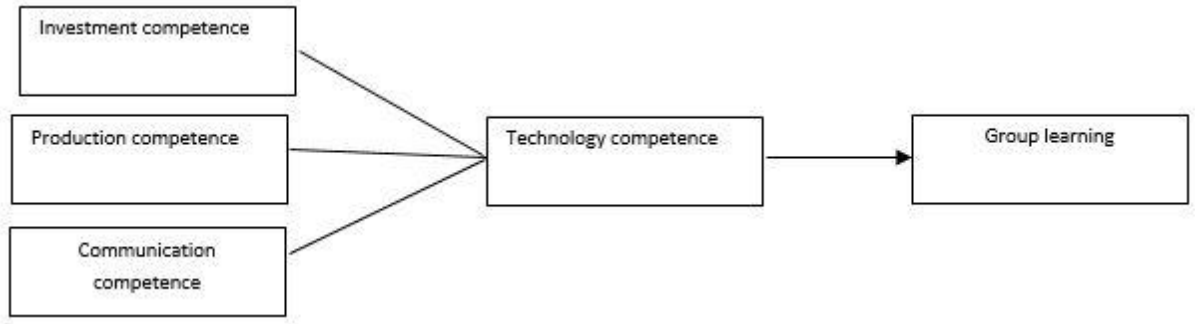

Figure 1- Conceptual model of the study

Based on the conceptual model, the study hypotheses are as:

Main hypothesis

- Technology competence is significantly associated with group learning.

Sub hypotheses

- Investment competence is significantly associated with group learning.
- Production competence is significantly associated with group learning.
- Communication competence is significantly associated with group learning.

Study methodology

The study is descriptive-correlation and for data collection for theoretical basics and review of literature, library method was used via investigation of books, journals and international and local papers extracted from internet sites regarding technology competence and group learning.

The study population is a set of people or u nits with minimum one common attribute (Sarmad et al., 177, 1999). The study population is all the employees of regional electricity companies, regional water, water and wastewater of Sistan Baluchestan province.

The study population is a set of signs selected among a part, group or greater population as this set indicates the quality of features of that big group or society (Khaki, 250, 2008).

Stratified sampling method is used in the present study. The employees were divided into above associate and below associate degree. The questionnaire was distributed only among the employees above associate degree. Table 1 shows the number of employees with above associate degree in three companies of regional water, regional electricity and water and wastewater:

Table 1- The number of employees with above associate degree in the studied companies

WATER AND WASTEWATER	REGIONAL ELECTRICITY	REGIONAL WATER
70	55	65

After distributing questionnaire among all employees with above associate, the number of collected questionnaires was shown in Table 2.

Table 2- The number of correct collected questionnaires of the study companies

WATER AND WASTEWATER	REGIONAL ELECTRICITY	REGIONAL WATER

52	51	46

In all types of studies that are designed to describe the existing condition and those that are designed to study the relation between variables, the researcher should collect some data and measure some variables. The study measure is questionnaire. Questionnaire is one of the most common study measures that is used in most of the behavioral sciences researches. The questionnaires are classified in terms of the form of questions into two types of open and close response (Pasha Sharifi and Sharifi, 2001, 165-183). The present study applied close response. The data collection methods are as:

- Library studies including the study of local and internal books and journals in databases to achieve the theoretical basics and using the experiences of other researchers.
- Using questionnaire as the main instrument of data collection to achieve the required data

In this study, 19 questions and two questionnaires were used to evaluate the technology competence variables and group learning. In addition, four questions are used to evaluate the demographic variables. The feature of each of the questionnaires is mentioned as:
1. Technology competence questionnaire: To evaluate technological competence, Lall (2001) scale is used. This scale is including 19 questions based on 5-item Likert scale. Three dimensions of investment competence, production competence and communication competence are evaluated. Based on the application of this questionnaire in production companies and as the studied population was service organizations, based on the view of lecturers of University, we corrected and eliminated some of the questions. After the corrections, some of the questions were changed and the number of questions were reduced from 19 to 15. Finally, the components and questions of each factor are shown in Table 3:

Table 3- The adaptation of the questions of technology competence questionnaire and its components

Questions of each subscale	Subscale	Questions of each scale	Scale
1, 2, 3, 4, 5, 12, 15	Investment competence	Questions 1-15	Technology competence
6, 7, 9, 10	Production competence		
8, 11, 13, 14	Communication competence		

2. Group learning questionnaire: To evaluate group learning, Neefe (2001) standard questionnaire was used. This questionnaire is including 4 questions being designed based on organizational learning dimensions of Sengeh view 1992.
3- The demographic features questionnaire: To achieve information about individual and demographic features, demographic features questionnaire was used. In this questionnaire, the variables age, gender, education and experience are used.

Validity or reliability of the study

The present study applied reliability or conceptual validity. When empirical reliability is not possible or it is difficult to achieve creditability from practical or empirical views, conceptual reliability is used and via criteria, the researcher can show a concept is measured (Khaki, 2008, 291). The researcher based on the standard questionnaires, referring to the views of experts, confirmatory factor analysis is used for study validity test. In confirmatory method, it is determined the data are coordinated with factor structure or not. In two figures 2, 3, we investigated this issue. The numbers of explicit variables (questions) and latent variables or structures are called factor load or factor weight and this shows correlation and load an explicit variable has on latent variable and it should be more than 0.3. In figures 2, 3 evaluating the validity of technological competence and its dimensions and group learning, it can be said all factor loads are more than 0.3 and the questionnaire has good validity.

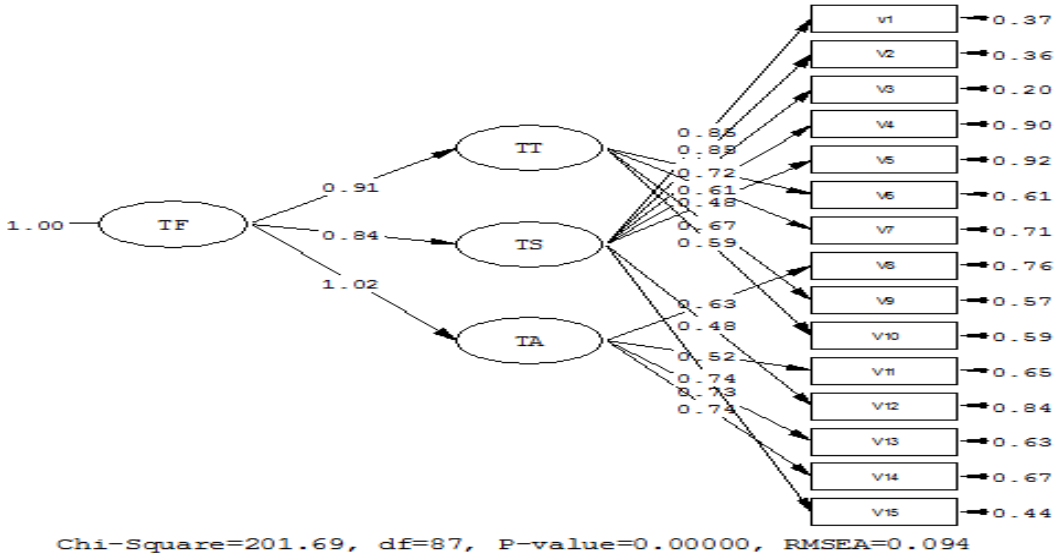

Figure 2- Confirmatory factor analysis to prove validity of technological competence

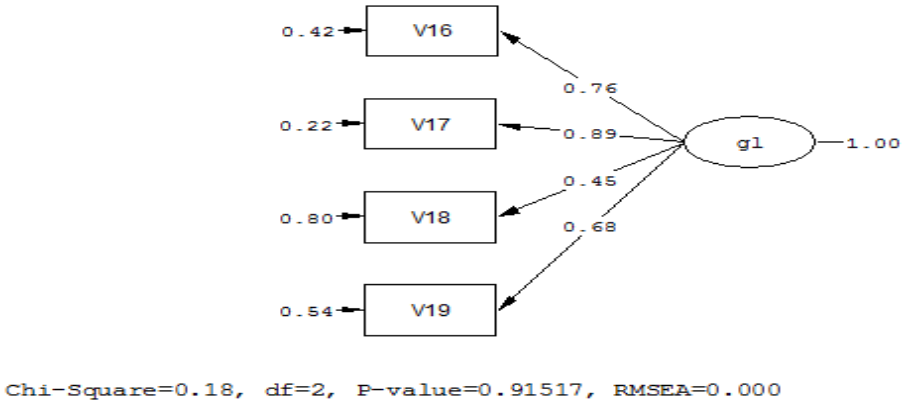

Figure 3- Confirmatory factor analysis to prove validity of group learning structure

Reliability of study

A test has reliability if observation and real scores have high correlation. Various factors are effective on validity and reliability as: 1- Not defining the terms, 2- The lack of justification of askers, 3- the heterogeneity of respondents, 4- The change of conditions and grounds of questioning, 5- Appearance and internal condition of tools, 6- inconsistency of various stages of the study (Ranji Jeiforudi, 2010). To determine the reliability, Cronbach's alpha is used and the obtained Cronbach's alpha coefficient for technology competency and group learning

survey were 0.909 and 0.839, respectively and as Cronbach's alpha coefficient of both questionnaires was higher than 0.7, both questionnaires had required reliability.

Data analysis

Based on the received questionnaires of 149 people, the following demographic data are achieved:

Table 4- The summary of demographic data

Cumulative frequency percentage	F%	F	N	Subgroup	Demographic variable
21.6 74.3 93.9 100	21.5 52.3 19.5 6	32 78 29 9	148	Below 30 years 30-40 40-50 Above 50 years old	**Age**
58.5 100	57.7 40.9	86 61	147	Man Woman	**Gender**
15.5 77.7 100	15.4 61.7 22.1 0	23 92 33 0	148	Associate BA MA PhD	**Education**
14.2 42.6 65.5 85.1 100	14.1 28.2 22.8 19.5 14.8	21 42 34 29 22	148	Below 5 years 5-10 10-15 15-20 Above 20 years	**Experience**

As the data are rank type, to achieve the correlation of data, Spearman correlation is used. Now each of the hypotheses is considered.

Main hypothesis: Technology competence is associated significantly with group learning.

This hypothesis is defined as followings in statistical hypothesis:

$$\begin{cases} H_0 : \mu \le 3 \\ H_1 : \mu > 3 \end{cases}$$

Null hypothesis: There is no significant association between technology competence and group learning.

H1: There is a significant correlation between technology competence and group learning.

Table 5- The summary of Spearman correlation coefficient regarding the relationship between technology competence and group learning

Test result	Significance level	Correlation coefficient	Second variable	First variable
There is an association.	0.000	0.500	Group learning	Technology competence

Based on the data of Table 5, it can be said that at significance level Sig=0.000, Spearman correlation coefficient between the technology competence and group learning was 0.500. Thus, there is a positively significant correlation between two above variables. Thus, with confidence interval more than 0.99, null hypothesis is rejected and study hypothesis is supported. It can be said there is a direct and significant association between technology competence and group learning in three companies.

First sub hypothesis: There is a significant association between investment competence and group learning.

This hypothesis is defined as followings in statistical hypothesis:

$$\begin{cases} H_0 : \mu \leq 3 \\ H_1 : \mu > 3 \end{cases}$$

Null hypothesis: There is no significant association between investment competence and group learning.

H1: There is a significant correlation between investment competence and group learning.

Table 6- The summary of Spearman correlation coefficient regarding the relationship between investment competence and group learning

Test result	Significance level	Correlation coefficient	Second variable	First variable
There is an association.	0.000	0.422	Group learning	investment competence

Based on the data of Table6, it can be said that at significance level Sig=0.000, Spearman correlation coefficient between the investment competence and group learning was 0.422. Thus, there is a positively significant correlation between two above variables. Thus, with confidence interval more than 0.99, null hypothesis is rejected and study hypothesis is supported. It can be said there is a direct and significant association between investment competence and group learning in three companies.

Second sub hypothesis: There is a significant association between production competence and group learning.

This hypothesis is defined as followings in statistical hypothesis:

$$\begin{cases} H_0 : \mu \leq 3 \\ H_1 : \mu > 3 \end{cases}$$

Null hypothesis: There is no significant association between production competence and group learning.

H1: There is a significant correlation between production competence and group learning.

Table 7- The summary of Spearman correlation coefficient regarding the relationship between production competence and group learning

Test result	Significance level	Correlation coefficient	Second variable	First variable

There is an association.	0.000	0.445	Group learning	production competence

Based on the data of Table7, it can be said that at significance level Sig=0.000, Spearman correlation coefficient between the production competence and group learning was 0.445 in water and wastewater companies, regional water and regional electricity of Sistan and Baluchestan province. Thus, with confidence interval 0.99, null hypothesis is rejected and study hypothesis is supported. It can be said there is a positive and significant association between production competence and group learning in three companies. The relationship is average.

Third sub hypothesis: There is a significant association between communication competence and group learning.

This hypothesis is defined as followings in statistical hypothesis:

$$\begin{cases} H_0 : \mu \le 3 \\ H_1 : \mu > 3 \end{cases}$$

Null hypothesis: There is no significant association between communication competence and group learning.

H1: There is a significant correlation between communication competence and group learning.

Table 8- The summary of Spearman correlation coefficient regarding the relationship between communication competence and group learning

Test result	Significance level	Correlation coefficient	Second variable	First variable
There is an association.	0.000	0.438	Group learning	communication competence

Based on the data of Table8, it can be said that at significance level Sig=0.000, Spearman correlation coefficient between the communication competence and group learning was 0.438. Thus, with confidence interval 0.99, null hypothesis is rejected and study hypothesis is supported. It can be said there is a positive and significant association between communication competence and group learning in three companies.

To show the effect of technology competence on group learning, regression is used. To show the effect of entrance of each of the independent variables on dependent variables, stepwise regression test is used.

Table 9- The summary of linear regression test to show the effect of technology competence on group learning

Significance level	t	R^2 adjusted	R^2	R	Dependent variable	Independent variable
0.000	7.767	0.288	0.292	0.541	Group learning	Technology competence

As shown in Table 9, significance level is 0.000 and this shows significance of total model. If significance level is small (less than 0.05), the independent variables can well determine the

dependent variable changes. In Table 9, R is reported equal to correlation coefficient. The difference between R and correlation coefficient is that R is ranging 0, +1 and never is it negative. R square in the above table is squared correlation coefficient and is called the coefficient of determination. Adjusted R square is the coefficient of determined that is adjusted. The coefficient of determination shows an amount of dependent variable variance that is determined by independent variables. R2 is 0.292, it means the technology competence variable alone can determine 29.2% of variance (changes) of group learning variable.

The bigger t, the smaller significance level. It means that independent variable (predictive) has considerable effect on dependent variable. T, here is 7.767.

To determine the role of each of technology competence components on group learning, multiple linear regression model by step-wise method is used. In this analysis, technology competence components are used as predictive variable and group learning as criterion variable. It can be said in step-wise regression, the variables enter based on correlation coefficient. The results of the test are shown in Table 10.

Table 10- Step-wise regression of the share of each of technology competence on group learning

Significance level	F	R^2	R	Variables	Step
0.000	50.074	0.255	0.505	Production competence	**1**
0.000	30.569	0.297	0.545	Communication competence	**2**

As shown in Table 10, in the first step, production competence variable with highest co relation coefficient with dependent variable entered regression equation and determined 25.5% of group learning variance and based on observed F as 50.074, this variance determined in the first step is significant at the level Sig=0.000.

In the second step, the communication competence variable with highest correlation coefficient with dependent variable after investment ability entered regression equation and R2 is reached to 29.7% and determination power is increased as 4.2% and based on observed F as 30.569, this determined variance in the second step is significant at the level Sig=0.000. Here, investment competence variable is not significant and it is deleted from the model.

Evaluation of structural section of model

After testing the study hypotheses, it is required to present the structural model presenting the relationship between study latent variables. In the investigation of the structural section of the model, the relationship between internal and external latent variables is considered. Here we should understand are theoretical relations between the variables in conceptual framework by the researcher are supported by data or not. To investigate the model structural section, as it is observed in the later sections, structural equations modeling technique is used.

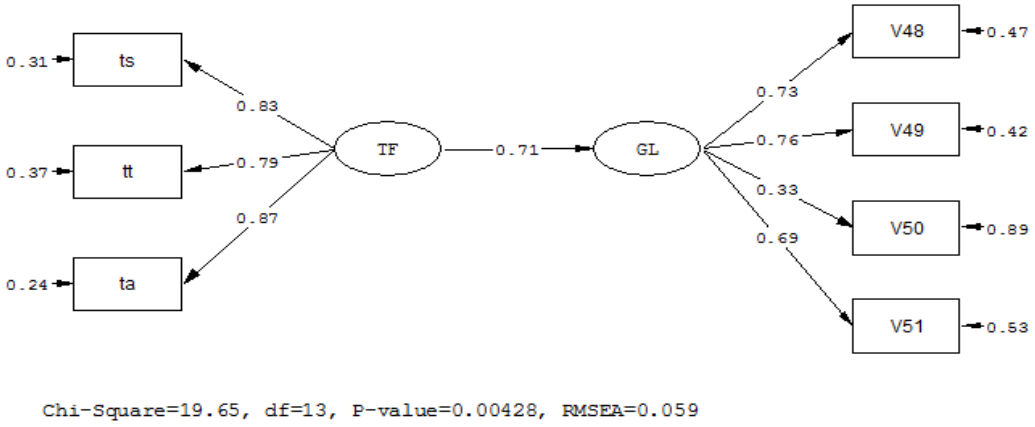

Figure 4- Structural model of the study in standard estimation

Based on the results of Figure 4, we can conclude the suitable fitting of the model.

Table 11- The results of the goodness of fit of structural models of the study

RMSEA	P-value	DF	X^2
0.059	0.00428	13	**19.65**

Table 11 shows the structural model between technology competence and dependent variable of group learning in standard estimation and the effect of each of the variables or items in variance explanation of the variable scores or main factor. For above structural model, we can compare the components based on their factor load and evaluate their effect on dependent variable as the component with great factor load has high effect on dependent variable. The estimation results showed the good condition of model. Based on Lisrel output, X^2/df is less than 3 and it showed the little difference of the conceptual model with study data. RMSEA value is 0.059 and the lower this value, the better the goodness of fit.

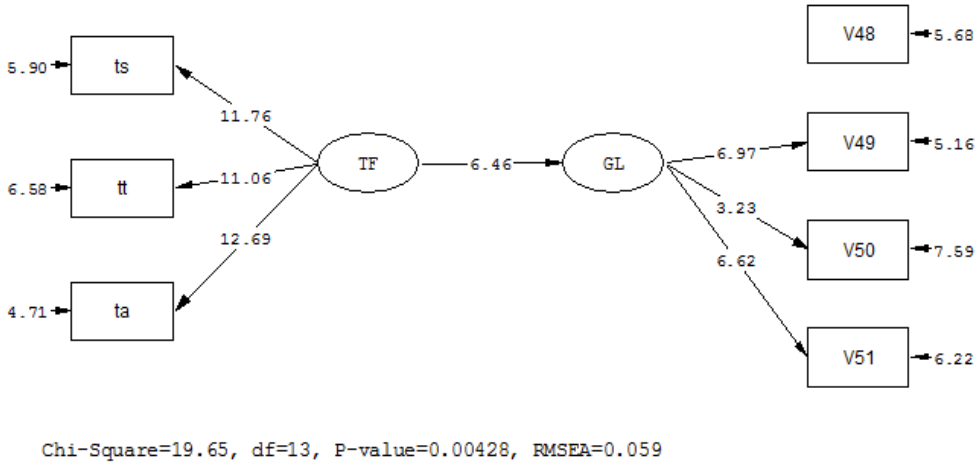

Figure 5- Significance of structural coefficients of the study model

Finally, chart 5 shows significance numbers of structural model. It can be said all relations are significant. Thus, study model can achieve a good model and show the relations between the dimensions and variables.

Conclusion and Recommendation

Based on the importance of service sector and effective factors and the important effects on economic growth, the present study evaluated the effects of technology competence on group learning in service organizations. This study was evaluated in three service companies

of regional water, regional electricity and water and wastewater of Sistan and Baluchestan province and the following results were achieved:

To investigate the effect of technology competence and its dimensions in group learning, regression and spearman tests were used and the results of the test are significant at confidence interval 99%. It means that there is a positively significant correlation between technology competence and group learning. This means that the greater the technology competence in organization, the greater team learning creating organizational learning. Also, three dimensions of technology competence include investment competence, production competence and communication competence with confidence 99% with group learning. After determining correlation by regression statistical tool, it was found among technology competence, production competence, communication competence had the highest effect and determination coefficient for group learning. It seems that service organizations with more emphasis on production competence including simple skills as quality control, production and maintenance to complex activities as adaptation, development and etc. to research requirements, design and innovation, increased group learning in their organizations. Based on the study findings, the following recommendations are presented to improve technological competence and group learning:

- Due to the rate skillful labor force in developing countries, it is recommended that based on exact planning, we give required training to labor force that have flexibility and change. in accepting new technologies.
- Using up to date technologies as video conference to train employees.
- Using update technologies to exchange information of employees with each other.

References

1. Ahmadi, Ali, Eliasi, (2002), "Formulation of development strategies of technology competence", Future management, Tomorrow Management, first year, No.3&4.
2. Azadi Yazdi, Sanaz, Mousavi Madani , Fariborz, (2009), "Barriers to implementing paperless technologies in government agencies", Tadbir Journal, Issue 210, November, 36-40.
3. Beikzade, Jafar, Fathi Banayi, Roghayye, (2012), "Organizational learning with entrepreneurial and electronic approach", Tehran, Forouzesh Publications, 1st Printing.
4. Pashasharifi, Hassan, Sharifi, Nastaran, (2001), "Research methods in the behavioral sciences", 1st Printing , Tehran,Sokhan Publications.
5. Heidarie, S.Abdollah, Seyed Hosseini, S.Mohammad, Shahabi, Ali, (2013), "Simulation technology acceptance model in the Iranian banking with system dynamics approach", Journal of Management of Technology Development, No.1, Summer,67-98.
6. Khaki, Gholamreza, (2008), "Research Methods in Management", 2nd Printing , Tehran, Baztab Publications
7. Dadmehr, M.Sadegh, (2010), "The Impact of Technology on Organizational Communication", Journal of Bank, 106-112.
8. Dastjerdi, Davood, Mokhtarzadeh, Nima, Yazdani, Hamid Reza, (2010), "Examine the impact of technology transfer on firm competitive performance: Case Study Iranian Piece Maker Company Tondar 90 parts manufacturer", Journal of Industrial Management, Volume2, No.4, p 2.
9. Rahmati, Dariush, Salehi, Alireza, Azizi, Ali, Zoghi, Leyla, (2011), "Individual learning with a strategic approach", Journal of Development, Sixth year, No. 19, 61-98.

10. Ranji Jifroodi, Nim, (2010), "The impact of office automation on decision making among the managers of the governor's house, MSc Thesis in Business Administration, Islamic Azad University of Rasht", Supervisor: Dr. Mohammad Taleghani.
11. Sarmad, Zohreh, Bazargan, Abbas, Hejazi, Elaheh, (1999), "Research methods in the behavioral sciences", 1st Printing, Tehran, Agah publications.
12. Tabatabaeeian, S. Habibollah, Naghizadeh, Reza, Khaledi, Arman, Naghizadeh, Mohammed, (2010), "Composite Indicator for Monitoring Technological Capability: Assessing the Status of Technological Capability in Iran and 69 Other Countries", Politics, Science, and Technology Quarterly, Year Two, Issue 4, spring and summer.
13. Emadzade, Mostafa, Esfahani, Rahim, Samadi, Saeed, Mohammadi, Farzaneh, (2009), "The effect of labor force quality on economic growth in selected countries", Quarterly of Quantitative Economics, Volume 6, No. 1, 1-26.
14. Ghazinouri, Soroush, (2004), "Technology assessment instruments to assist policy", Ketabkhaneh publications, 1st Printing, Tehran.
15. Grami, Mohammad Reza,Nour Alizade, Hamid Reza, (2008), "Organizational excellence; The European Foundation of Quality Management Excellence Model", Publisher: Institute for Productivity and Human Resources, 2nd Printing.
16. Lotfollahi Haghi, Mahrokh, (2010), "Technology in organizations, Journal of Management Age", Fourth year, No. 14, May, pp 82-89.
17. Naghizadeh, Mohammed, Tabatabaeeian, S. Habibollah, Manteghi, Manoochehr, Hanafizadeh, Payam, Naghizadeh, Reza, (2013), "The effect of market orientation and firm managers' perceptions of the dynamics of the environment on technological capability in firms of the avionics division of Iran", Technology Development and Management Quarterly, Issue 1, summer, pp 9-36.
18. Vordinejad, Fereydoun, Amiri, Mojtaba, Bahrami, Shahla, (2009), "The impact of new technologies on the competitive advantage of the Islamic Republic News Agency", Journal of Public Administration, Volume 1, No. 3, 175-192.