



RESEARCH ARTICLE

Prediction of Mackerel Landings Using MODIS Chlorophyll-A, Pathfinder SST and Seawifs PAR

N.Madhavan^{1*}, D. Thirumalai Vasan ², K. Ajith Joseph.³ and K.Sravani¹

¹College of Fishery Science, SVVU, Muthukur-524344, Andhra Pradesh, India.

²Institute of Remote Sensing, Anna University, Guindy, Chennai- 600025, TamilNadu, India.

³Nansen Environmental Research Center (INDIA), Sreekandath Road, Ravipuram, Kochi, 682016, India.

Received: 10 Jan 2015

Revised: 21 Feb 2015

Accepted: 15 Mar 2015

*Address for correspondence

Dr. N.Madhavan

Associate Professor, College of Fishery Science,

SVVU, Muthukur-524344,

Andhra Pradesh, India.

E-mail: madhav_irs@yahoo.com



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License (CC BY-NC-ND 3.0)** which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

A total of Fourteen Artificial Neural Network (ANN) models were developed to predict 12 month ahead monthly Mackerel landings was analyzed for Bay of Bengal, Tamil Nadu (Nagapattinam dt) coast, India, considering previous 60 months as inputs to the models. This Neural Network Models developed with Time Series of ocean colour parameters such as Chlorophyll-a (CHL), Sea Surface Temperature (SST) and Photosynthetically Active Radiation (PAR) as input in Time Series as dependent variable for the target of Mackerel catch time series in the study area as Seasonal (12 lag) and Non-Seasonal models for this study. The output from seasonal and Non-Seasonal models were compared and the seasonal models were out performed Non-Seasonal models in prediction. The model **STS_MO_MAC_CP_S** (R^2 between the predicted and observed landings is about 0.8818) performed well when compare to other Seasonal, Non-Seasonal Univariate and Multivariate Neural Network models. This study demonstrates that the ocean colour parameters Chlorophyll-a, Sea Surface Temperature and Photosynthetically Active Radiation can be used in the study area on Mackerel landing prediction. In general, seasonal ANN exhibits good performance in prediction of Mackerel catch landings when compare to Non-Seasonal ANN architecture.

Key words: Chlorophyll-a, Sea Surface Temperature, Photosynthetically Active Radiation. and Neural Network.



**Madhavan et al.**

INTRODUCTION

Ocean colour remote sensing is applied more and more widely in the water quality monitoring of oceanic, Case 1 and Case 2 water bodies, because it has many advantages, such as, wide range synchronization and low cost for data collection. Satellite remote sensing of ocean colour information on chlorophyll concentration, SST, wind speed and Sea Surface Height (SSH) gives better understanding about Oceanographic processes such as, currents, ocean fronts, rings, eddies and coastal upwelling. In this context, the first Space borne ocean-colour sensor Coastal Zone Colour Sensor (CZCS) was launched in the year 1978, which provided data until 1986. This was followed by several new sensors such as, SeaWiFS (1997), MODIS in 1999 and 2002 and recently by OCEANSAT-2 OCM on Sep 23 2009, is added to the list. In this study, three satellite derived ocean environmental parameters (CHL), (SST) and (PAR) are considered as input variable for Neural Network Modelling (NNM) to predict the monthly landings of Mackerel at Nagapatnam District, Tamil Nadu, India.

MATERIALS AND METHODS

Study area

The study area Nagapatnam coastal district (White in color) in Tamil Nadu, eastern part in Bay of Bengal covering a coast line length of 190 km. Figure.01 explains the schematic representation of Nagapatnam district falls in the latitudinal and longitudinal extensions between 10°46'1.2"N and 79°49'58.8"E on the Eastern part of Bay of Bengal. The movement of fishermen and the seaside limit (1000 m isobaths) for the extraction of Sea Surface Temperature, Chlorophyll-a and Photosynthetically Active Radiation in bay of Bengal. The minimum and maximum temperature are 20 °C and 34 °C. This district comprises of five coastal taluks that is Nagapattinam, Sirkazhi, Tarangampadi, Mayiladuturai and Vedaranniyam.

Artificial Neural Networks

There are so many different ways to forecast nonlinear phenomena, among them Neural Networks is the best efficient method to get forecast information from a nonlinear time series (Lin sun et.al 2009). There by the applications of neural networks to fish landing time series forecast have become very popular over the last few years, since most of the landings time series are in nonlinear pattern. Neural networks are simple nonlinear computing units and just imitating human neural system has an input layer, a hidden layer and an output layer. Layers in between input and output layers are generally called as hidden layers and commonly referred as neurons. When data is loaded in the ANN (Artificial Neural Network), it must be preprocessed from its numeric range into the numeric range that the ANN can deal with efficiently to improve the efficiency of the learning results (Kim and Lee, 2004).

Fishery data

For the preparation of Time Series (TS) data interms of Indian Mackerel (*Rastrelliger kanagurtha*), monthly landing details were obtained from the Central Marine Fisheries Research Institute (CMFRI) Cochin, database. The period considered for Mackerel TS is from 2005 to 2010, out of which the CMFRI data pertains to the period 2005-2009. For validation purpose, fish catch data for the year 2010 from fish landing centers were collected. Standardization of commercial catches through Catch Per Unit Effort (CPUE) could provide a powerful method for estimating trends in the stock abundance. Unfortunately, there were many aspects of fishermen's behaviour that will cause CPUE to be not proportional to abundance even on a very small spatial scale (Hilborn and Walters 1992). So, for this study, Mackerel landing details are considered instead of CPUE for the preparation of fish landing TS. The data were



**Madhavan et al.**

collected by qualified and well-trained technical staff of CMFRI by following stratified multi-stage random sampling technique, in which the Mackerel landings were recorded by covering landing centers along the Nagapattinam coast. The catch data for the year 2010 (on monthly basis) were collected in entire Nagapattinam coastal area from all forty four landing centers physically with the help of Department of Fisheries, Officials. A team of fourteen local fishermen were engaged to cover the entire 44 fish landing centers for the collection of fish catch data. This data is used for testing and validating NNM predicted fish catch.

Satellite data.**Chlorophyll-a concentration (CHL)**

The primary function of Chlorophyll-a is photosynthesis of marine algae in the ocean, which is the main food for Mackerel larvae and that availability of food during the critical developmental period of Mackerel larvae determines the year class of Mackerel population is important for Mackerel availability in Bay of Bengal. So Chlorophyll-a in Bay of Bengal is considered in the prediction models in this study. MODIS level 3 standard binned images archived by the Ocean Biology Processing Group (OBPG) were used to estimate sea-surface chlorophyll-a concentrations. These data were obtained from the <http://oceancolor.gsfc.nasa.gov/cgi/l3> . for this study Global Area Coverage (GAC) monthly composite MODIS images with a spatial resolution of about 4.5 km for the period from January 2005 to December 2010.

Sea Surface Temperature (SST)

In Mackerel life cycle Sea Surface Temperature is an important factor which leads the Mackerel activity levels to increase or decrease, makes Mackerels move into certain areas, and influences feeding and reproductive activity. Temperature data are of interest to those who wish to catch fish or study them. Since the Mackerel is a tropical fish we need to understand how temperature affects fish behavior. So Sea Surface Temperature also considered as one of the main environmental factor in the Mackerel landing prediction which is normally preferring temperature range of 27° to 29°C (Chidambaram, 1950). The NOAA pathfinder data presented in ftp://podaac.jpl.nasa.gov/allData/avhrr/L3/pathfinder_v5/monthly/ data were used to study SST for the same period having the same spatial resolution along with chlorophyll data.

Photosynthetically Active Radiation (PAR).

Photosynthetically Active Radiation (PAR) is the amount of light available for photosynthesis, which is defined as the quantum energy flux from the Sun light in the 400 to 700 nanometer wavelength range. Since the Mackerels are herbivores Photosynthetically Active Radiation also considered as one of the biophysical parameter. PAR changes seasonally and varies depending on the latitude and time of day. This data set consists of algorithm estimates of global Photosynthetically Active Radiation (PAR) reaching the surface obtained by the Sea-viewing Wide Field-of-view Sensor (SeaWiFS), in orbit on the OrbView-2 (formerly SeaStar) platform. SeaWiFS data products are processed and distributed by the Ocean Biology Processing Group (OBPG). For this study SeaWiFS Level 3 monthly Binned data files are downloaded from the FTP site at <http://oceancolor.gsfc.nasa.gov/cgi/l3> having 9 km spatial resolution.

Image processing

Monthly mean CHL, SST and PAR images for the entire period were downloaded, processed and extracted in BEAM software developed by European Space Agency(ESA). BEAM is an open-source toolbox and development platform for viewing, analyzing and processing of remote sensing raster data. BEAM supports a number of raster data formats such as GeoTIFF, HDF and NetCDF as well as data formats of other EO sensors such as Moderate Resolution





Madhavan et al.

Imaging Spectroradiometer (MODIS) and Advanced Very High Resolution Radiometer (AVHRR). The remote sensing data extracted for this study was in both NetCDF and HDF format, which is supported by BEAM software. A total of 216 images were downloaded, processed and spatially averaged as point data for each polygon for this TS preparation. A 1000 meter isobath of Tamil Nadu region in Bay of Bengal was digitized in ARC GIS environment. This isobath shape file again bifurcated into district polygons of all Tamil nadu coast to extract monthly mean information for CHL, SST and PAR. These polygons are imported into BEAM software along with monthly mean images of CHL, SST and PAR parameter to get the month wise time series of all 12 polygons (coastal districts) for six years from 2005 to 2010.

Methodology

The time series of Nagapatnam district Mackerels monthly landings were normalized from zero to one by simply dividing the real value by the maximum of the appropriate set because of their nonlinearity. The time series belongs to CHL, SST and PAR is kept as such, since they are having only seasonal influences on it. The in-situ Mackerel landing time series collected for the year 2010 January to December in all the landing centers of Nagapatnam district. The spatially averaged CHL, SST and PAR value extracted from images of Thiruvallur District to Ramanathapuram District. The Mackerel landings time series modeled in Matlab (R2012a) Neural Networks to get the prediction values for the year 2010 and compared with the insitu catch data. In this NN function the CHL, SST and PAR parameter up to 2005 - 2009 as input against the year 2010 as target to model to predict the Mackerel monthly catch for the year 2010 to Nagapatnam area.

Methods of evaluation.

Several measures of accuracy were calculated in the calibration between model output and observed value. A measure of correlation between the observations and the predictions is the coefficient of correlation (R). The proportion of the total variance in the observed data that can be explained by the model was described by the coefficient of determination (R²). The estimators to quantify the errors in the same units of the variance were the square Root of the Mean Square Error (RMSE), and the Mean Absolute Error (MAE). On the other hand other measures of variance were the Coefficient of Efficiency (E²) (Nash and Sutcliffe, 1970; Kitanidis and Bras, 1980), the Average Relative Variance (ARV) (Grin o. R. 1992), and the percent Standard Error of Prediction (SEP) (Ventura et al., 1995) also analyzed for sensitivity analysis in this study. The E² and AVR were used to see how the models explain the total variance of the data and represent the proportion of variation of the observed data considered for Mackerel forecasting modeling. The SEP allows the comparison of the forecast from different models and different problems because of its dimensionless. For a perfect performance, the values of R² and E² should be close to one and these of SEP and ARV close to zero. The optimal model is selected when RMSE and MAE are minimized. The above estimators are given by:

$$R = \frac{n \sum Y_i \hat{Y}_i - (\sum Y_i)(\sum \hat{Y}_i)}{\sqrt{n(\sum Y_i^2) - (\sum Y_i)^2} \sqrt{n(\sum \hat{Y}_i^2) - (\sum \hat{Y}_i)^2}} \tag{1}$$

$$E = 1.0 \frac{\sum_{i=1}^n |Y_i - \hat{Y}_i|^2}{\sum_{i=1}^n |Y_i - \bar{Y}_i|^2} \tag{2}$$





Madhavan et al.

$$ARV = 1.0 - E^2 \quad (3)$$

$$RMSE = \sqrt{\frac{\sum_{i=1}^n |y_i - \hat{y}_i|^2}{n}} \quad (4)$$

$$MAE = \frac{\sum_{i=1}^n |y_i - \hat{y}_i|}{n} \quad (5)$$

$$MAPE = \frac{100}{n} \times \sum_{i=1}^n \left| \frac{y_i - \hat{y}_i}{y_i} \right| \quad (6)$$

$$SEP = \frac{100}{\bar{y}_i} RMSE \quad (7)$$

Where y_i is the observed value, \hat{y}_i is the forecasted value to y_i , and n is the number of the observations of the validation set. \bar{y}_i is average mean value of the target.

RESULTS AND DISCUSSION

The uncertainty in traditional fishery model's effectiveness is mainly because of the variability increment with time and ecosystem types on fishery landings (Stergiou (1991, 1996) and inaccuracies in model input data sets during data collection and time-series gaps also leads discrepancies in various model predictions. Because of all the above reasons, predictions which may influences fisheries management plans have shifted from a Univariate single-species approach to an ecosystem-based multivariate approach (Stergiou, 2002). Based on the above reasons, in this study a variety of environmental parameters derived from satellite remote sensing have considered for the prediction of Mackerel fish landings in Nagapatnam district. In this paper, time series data, (2005 to 2010) of SST, CHL and PAR for Six years is considered as environmental input variables for NNM to predict the Mackerel landing in the study area

From Figure 2.(a) it is observed that March to June, when hot winds prevail, the SST will be high. The occasional showers of the South-west monsoon and subsequent river discharges, cools down the temperature gradually. Thereafter with setting of the North-east monsoon, the temperature steadily falls till December, when it reaches the minimum. The atmosphere continues to be cool till the weather becomes moderately warm during day though still cool at nights and then in the later part of March the hot season commences. The monthly temperature ranges between 25° C to 32° C. the mean monthly temperature is 27.7° C. From Figure 2.(b) it is observed that June to July when SST is low the CHL will be high. An inverse relationship between CHL concentration and SST was observed from Figure 2.(a) and 2.(b). The monthly CHL ranges between 0.32 to 0.93 Mg/m³. The mean annual CHL concentration is 0.58 Mg/m³. From the Figure 2. (c) it is observed that the PAR distribution in the study area is showing high, when SST is high and CHL is low. Hence, PAR is experiencing an inverse relationship with CHL and a linear relationship with SST. The monthly PAR ranges between 20.48 in December to 54.72 Ein/M²/day in April. The mean annual PAR is 44.9 Ein/M²/day. Figure. 3. shows that landings of Mackerel is high during the period May-July .The Government of Tamil Nadu has declared that the month of May (i.e. actually from April 15th to May 30th) is a closed season for fishing. However, since non-mechanised vessels and mechanised vessel (<10hp) are allowed during the period for fishing. Observations on Mackerel made at Mandapam on the south east coast of India indicated the





Madhavan et al.

possibility of two spawning periods, one during October-November and the other major spawning during May-June (CMFRI Annual Rept., 1957). The inference drawn by Bhimachar and George (1952) that food could be a major factor governing these migrations is contended by Sekharan (1965). He also felt that without studying the plankton available in the offshore waters the shoreward migration should not be linked with the food factor.

Table 1. shows the sensitivity analysis of MODIS CHL's performance over the Mackerel landings through NNM. In this modeling, Mackerel has been targeted by all the time series. Figures 4. and 5. a and b shows the STS MODIS Mackerel Neural Network model predictions in the study area in both Seasonal and Non-Seasonal pattern. According to Table. 1. the best Neural Network model among Non Seasonal and Seasonal model is STS_MO_MAC_CP_S, which gives the model accuracy of $R^2=0.7776$, % SEP=46.4266, E=0.5311 and MAPE = 25.1544. The NN structure for the rank best Neural Network is 2:05:01 with 400 epochs. From the result it is obvious that independent variable CHL and its combinations are having more correlation next to STS_MO_MAC_CP_S and the model STS_MO_MAC_CHL_S is ranked 2nd. the model STS_MO_MAC_SC_S stood 3rd and finally the fourth rank is achieved by the model STS_MO_MAC_CSP_S.

Among Non-Seasonal Neural Network modelling the model STS_MO_MAC_SP_NS stood 8th in the rank in the entire fourteen models, and stood first among Non-Seasonal NNM. The structure for the best NS Neural Network is 2:07:01 with 3000 epochs. The regression performance of all models are higher than 0.6 is found in all the present Seasonal Model. But, some models, the regression performances are not achieved up to the level of 0.6 .

STS (Modis) Mackerel Non Seasonal Models

The Figure 4.0 explains the prediction performances among Non-Seasonal STS Mackerel NNM. From the table Table 1.0 the best STS MODIS Mackerel for Non-Seasonal model is STS_MO_MAC_SP_NS which is ranked first among Non-Seasonal with a sensitivity result of $R^2= 0.2777$, % SEP= 95.4423, E= -0.9815 and MAPE = 66.2029 %. In this STS MODIS NN modelling the CHL and its combinations are performed poorly and shifted from positive correlation to negative correlation. Only the models STS_MO_MAC_PAR_NS and STS_MO_MAC_SP_NS gives the positive correlation in this Modelling. From the Figure 4. It is observed that all prediction values are under - estimated except the model STS_MO_MAC_CP_NS, where the month May and December are overestimated. Further the model STS_MO_MAC_SST_NS , overestimate November month observed value.

The low profile landing months are effectively predicted particularly in the months of November, December and May. A high amount of variation observed in the months of January, June and October. Almost all the iterations are under - estimated the above months in prediction.

STS (Modis) Mackerel Seasonal Models

Figure 5. a and b shows the observed vs prediction graphs for seasonal Mackerel NNM for MODIS CHL. All seasonal NNM (except STS_MO_MAC_SP_S) are correlated well with Mackerel landings with a R^2 greater than 0.60. Further an increased R^2 in MODIS CHL and its combination NNM prediction level is observed . In MODIS CHL almost all the NNM involves in over estimation in the month of June, whereas the month March was underestimated by all the individual models and combination NNM predictions. The model STS_MO_MAC_CP_S perfectly predicts the winter season months (September , November and December). Other models having variations from 60-100% over estimation in September month. The months August and October was almost predicted exactly by all the seasonal models.

The best performance observed in STS MODIS Mackerel seasonal model is STS_MO_MAC_CP_S with a prediction results of $R^2=0.7776$, % SEP=46.4266, E=0.5311 and MAPE=24.1544. Further, in Mackerel STS model analysis the model



**Madhavan et al.**

STS_MER_MAC_CHL_S captured 4th rank in overall performance, but here the model STS_MO_MAC_CHL_S performed next to STS_MO_MAC_CP_S and captured 2nd place. Based on which, it is inferred that the MODIS CHL gives better correlation results with CHL for seasonal Mackerel Neural Network Model in the study area. The combined performance of all seasonal predictions are shown in Figure . 5. a (H) for comparison purpose.

CONCLUSION

In this study the seasonal Neural Network models as a whole is giving good correlation and stood first seven positions out of fourteen models indicates that the seasonal models performed well when compare to Non-Seasonal models. The results from STS_MO_MAC_CP_S on the Mackerel fish landings have shown 88% correlation and a minimum MAE of 0.0029 between observed and estimated Mackerel landings in Nagapatnam district. The models STS_MO_MAC_CHL_S, STS_MO_MAC_SC_S, STS_MO_MAC_CSP_S are stood 2nd, 3rd and 4th having good correlation next to STS_MO_MAC_CP_S. It is concluded that all the Chlorophyll-a and its combination models are performed and occupy the first four position and this indicate that Mackerels are highly associated with Chlorophyll when compare to the Sea Surface Temperature. Further, the results showed that high prediction capacity of seasonal NNM with satellite environmental variables, even though the fish catch landings are having strong nonlinear relationship.

This gives the Mackerels in the study area are closed associated with Chlorophyll-a not with temperature in Bay of Bengal. However more research required to get deep understanding of the extent and nature of the relationships between environmental variables and Mackerel landings in the study area. With respect to the performance on amount (high and low) of landing and its prediction, seasonal Multivariate models giving high correlation and less variance. Winter months are modeled better in both Non-Seasonal and Seasonal models. The Non-Seasonal model trying to performs well only when the landings are high and perform well in the low landing winter seasons. To understand the complexities and seasonal nonlinearities, further studies are requires on the nature of uncertainty associated with the food and feeding habits of Mackerel, and the physiological changes which influence the ocean environment.

ACKNOWLEDGEMENTS

The authors are highly thankful to NERSC, Bergen, Norway and Cochin, India for providing opportunity to work in their laboratory to design the model and also to provide the time series landings data from CMFRI through NERSI India. Special thanks to the Mr. A. Elango, Deputy Director Of Fisheries, Tamil Nadu Fisheries Department , Chennai, and his team, for their help in collection of in-situ Mackerel landing data in Nagapatnam district.

REFERENCES

1. Bhimachar, B.S. and George, P.C., "Observations on the food and feeding habits of Indian mackerel", Proceedings of Indian academy and sciences, Vol. 35b, Pp 105-118, (1952).
2. Chidambaram, K. 1950. Studies on length frequency of the oil Mackerel, Mackerella longiceps and on certain factors influencing their appearance in the Calicut coast of Madras Presidency. Proceedings. Indian Academy of Science, 31: 252-286.
3. Grin o, R., 1992. Neural networks for univariate time series forecasting and their application to water demand prediction. Neural Network World 2, 437–450.
4. Hilborn, R., and Walters, C. J. "Quantitative fisheries stock assessment. Choice, Dynamics and Uncertainty", Chapman & Hall, New York, 570 pp, 1992.





Madhavan et al.

5. Kim, K., & Lee, W.B. (2004). Stock market prediction using artificial neural networks with optimal feature transformation. *Neural Computing & Applications* , 13(3), 255-260.
6. Kitanidis, P.K., Bras, R.L., 1980. Real time forecasting with a conceptual hydrological model. 2: applications and results. *Water Resources Research* 16, 1034–1044.
7. Nash, J.E., Sutcliffe, J.V., 1970. River flow forecasting through conceptual models. I: a discussion of principles. *Journal of Hydrology* 10, 282–290.
8. Sekaran, K.V., " On the oil Mackerel fishery of the calicut area during the years o1955-56 to 1958-59", *Indian journal of fisheries*, Vol. 9A (2), pp. 679-700. 1965.
9. Stergiou, K.I. "Describing and forecasting the sardine-anchovy complex in the eastern Mediterranean using vector auto regressions", *Fisheries Research* , Vol. 11, pp. 127-141, 1991.
10. Stergiou KI, Christou ED., Modelling and forecasting annual fisheries catches: comparison of regression, univariate and multivariate time series methods, *Fish. Res.*, vol. 25, pp. 105-138, 1996.
11. Stergiou, K.I., 2002. Overfishing, tropicalization of fish stocks, uncertainty and ecosystem management: resharpening Ockham's razor. *Fisheries Research* 55, 1-9.
12. Ventura, S., Silva, M., Perez-Bendito, D., Hervas, C., 1995. Artificial neural networks for estimation of kinetic analytical parameters. *Analytical Chemistry* 67, 1521–1525.

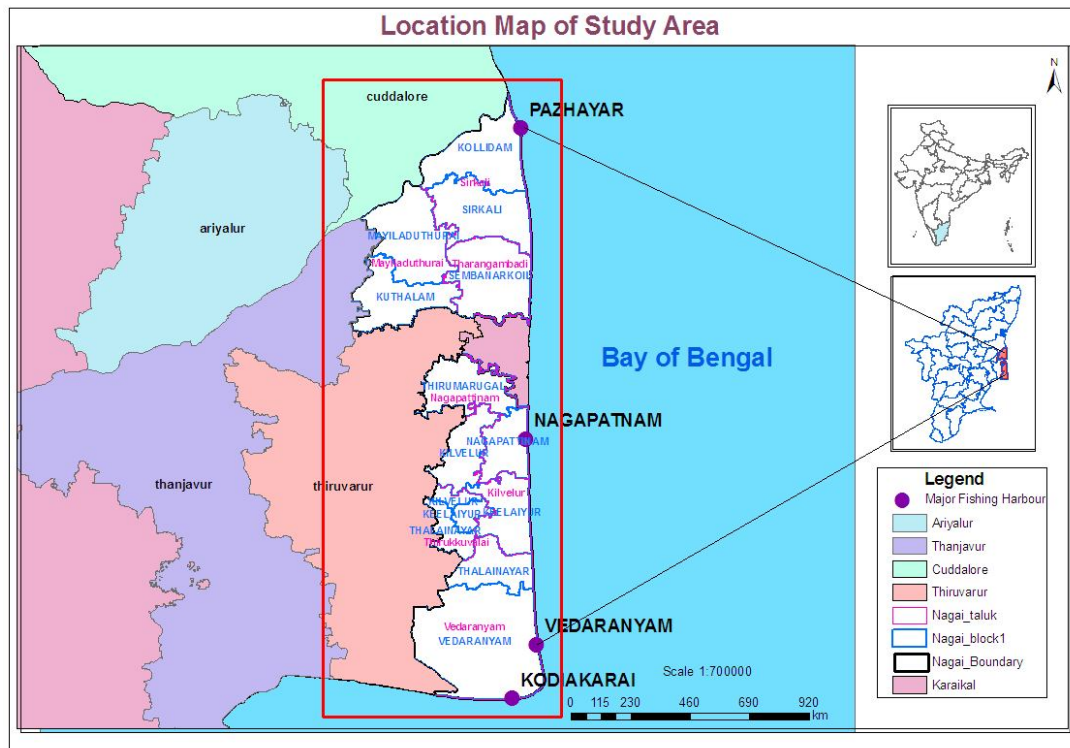
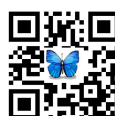


Figure 1. Study Area Details Of Nagapatnam District in Bay of Bengal





Madhavan et al.

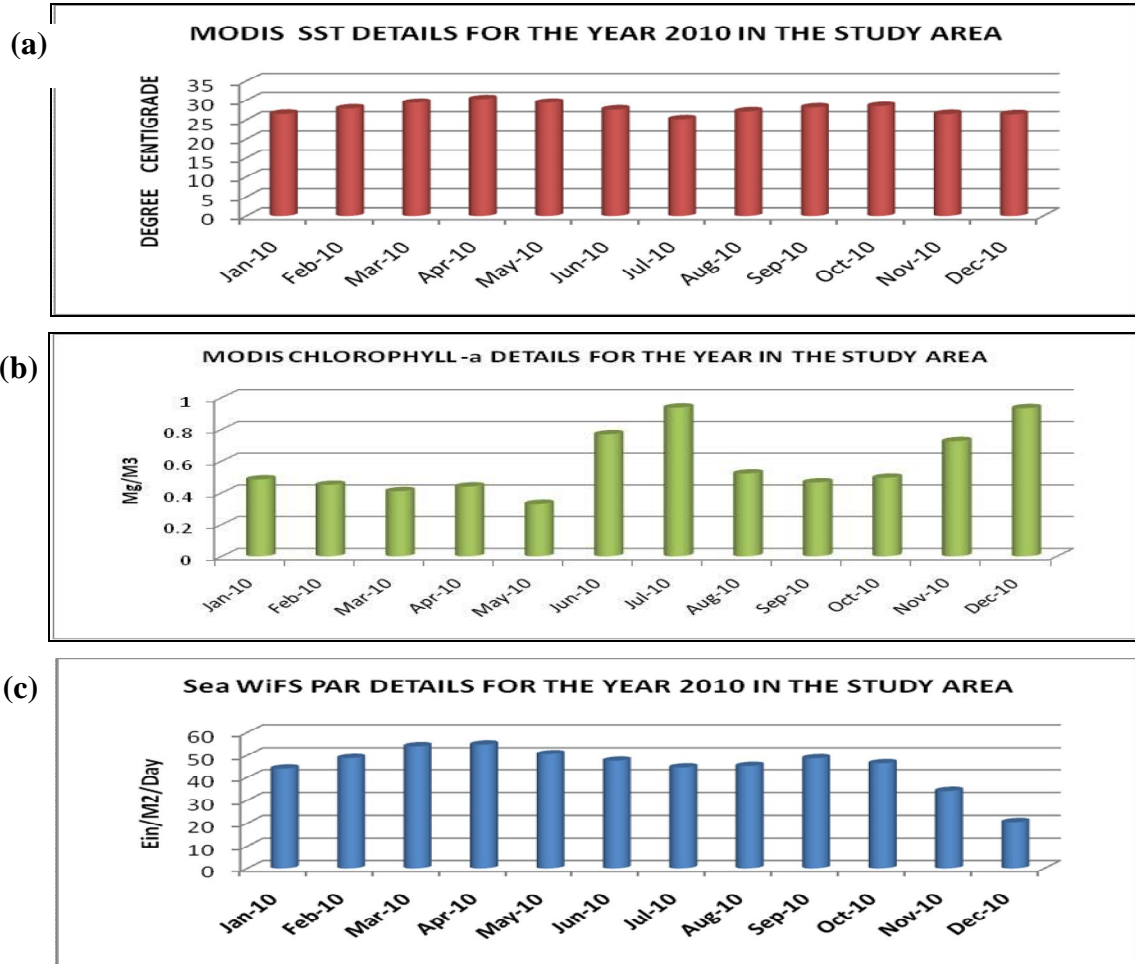


Figure 2. Monthly Mean value of SST (a), CHL (b) and PAR (c) in the study area

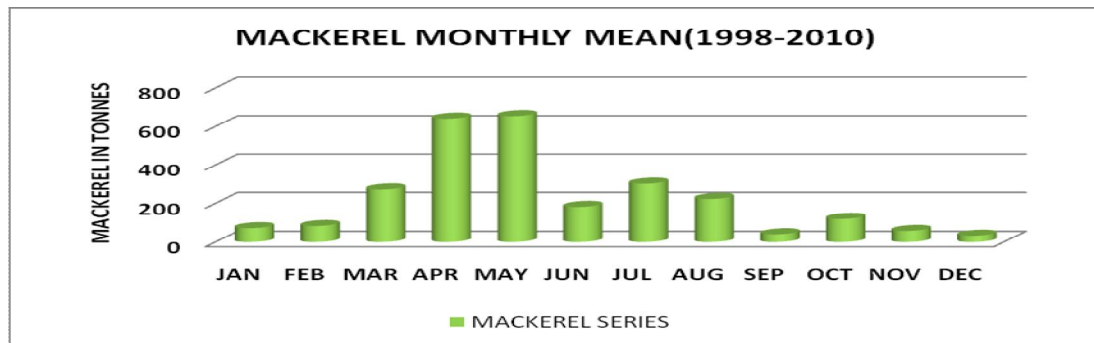
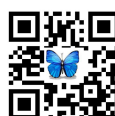


Figure 3. Monthly average variability (1998-2010) of Mackerel landings.





Madhavan et al.

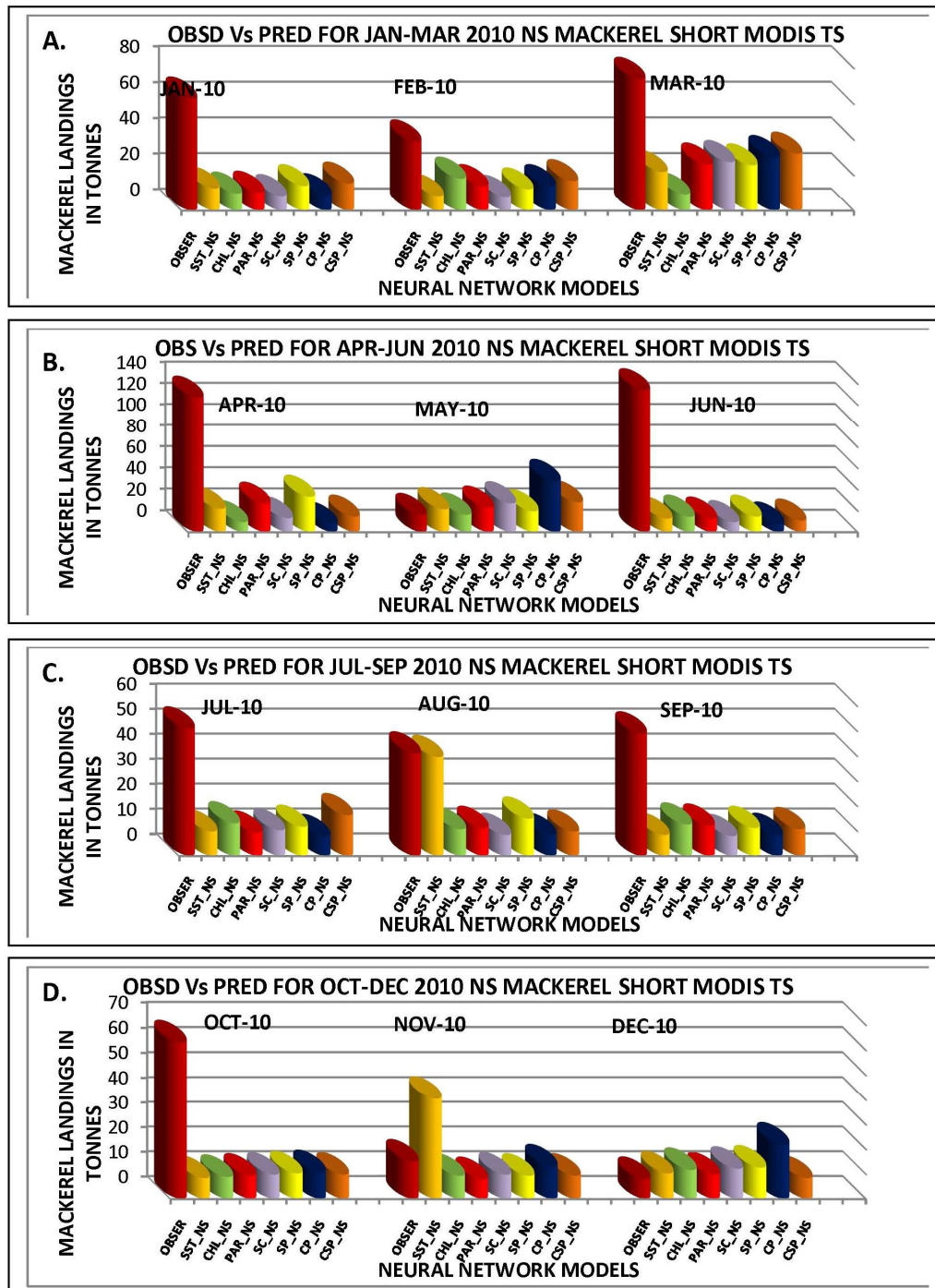
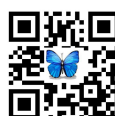


Figure 4.0 STS (Modis) Mackerel Non Seasonal fit for all monthly combinations





Madhavan et al.

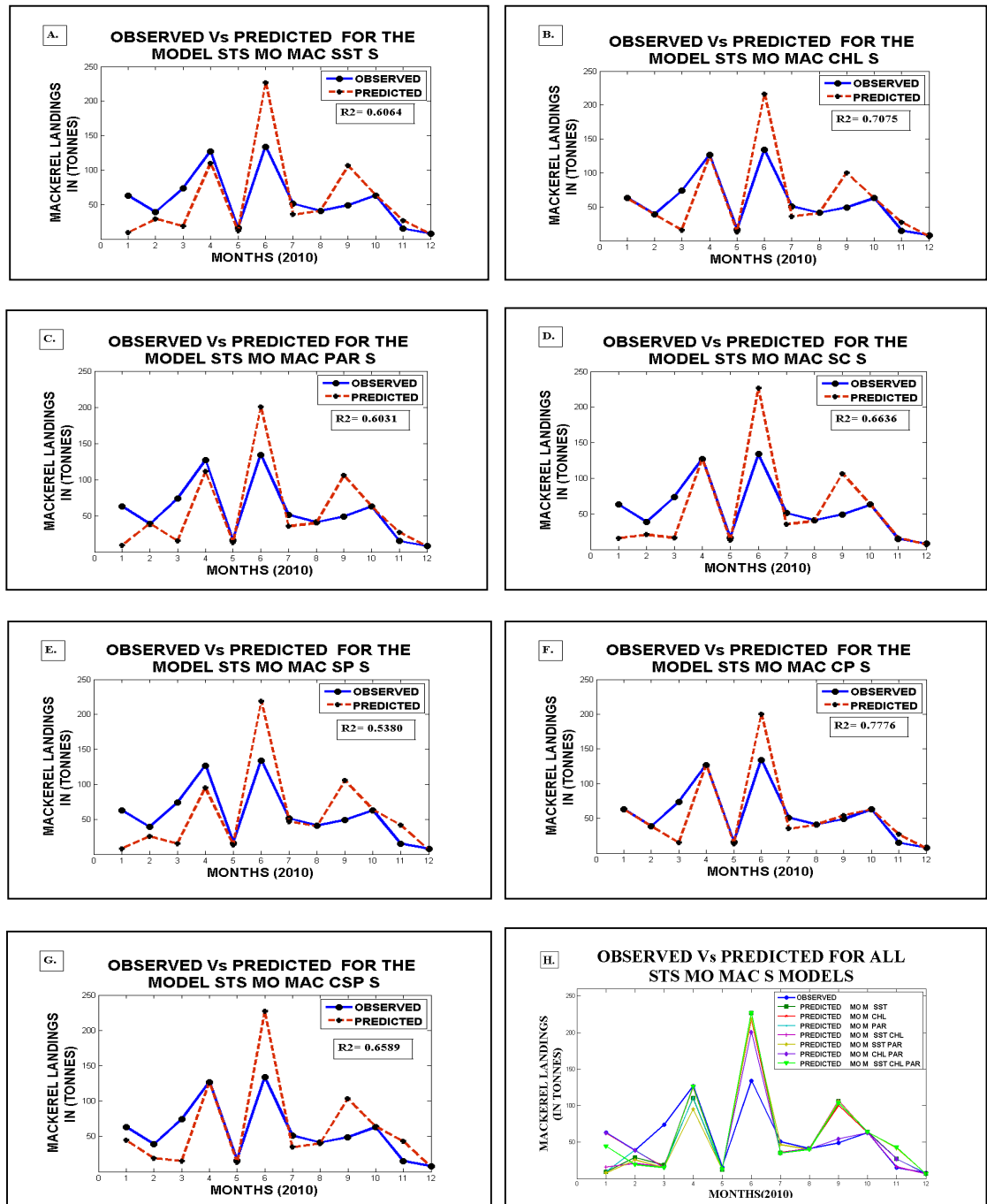
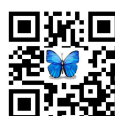


Figure 5.(a) STS (Modis) Mackerel Seasonal fit for all model combinations





Madhavan et al.

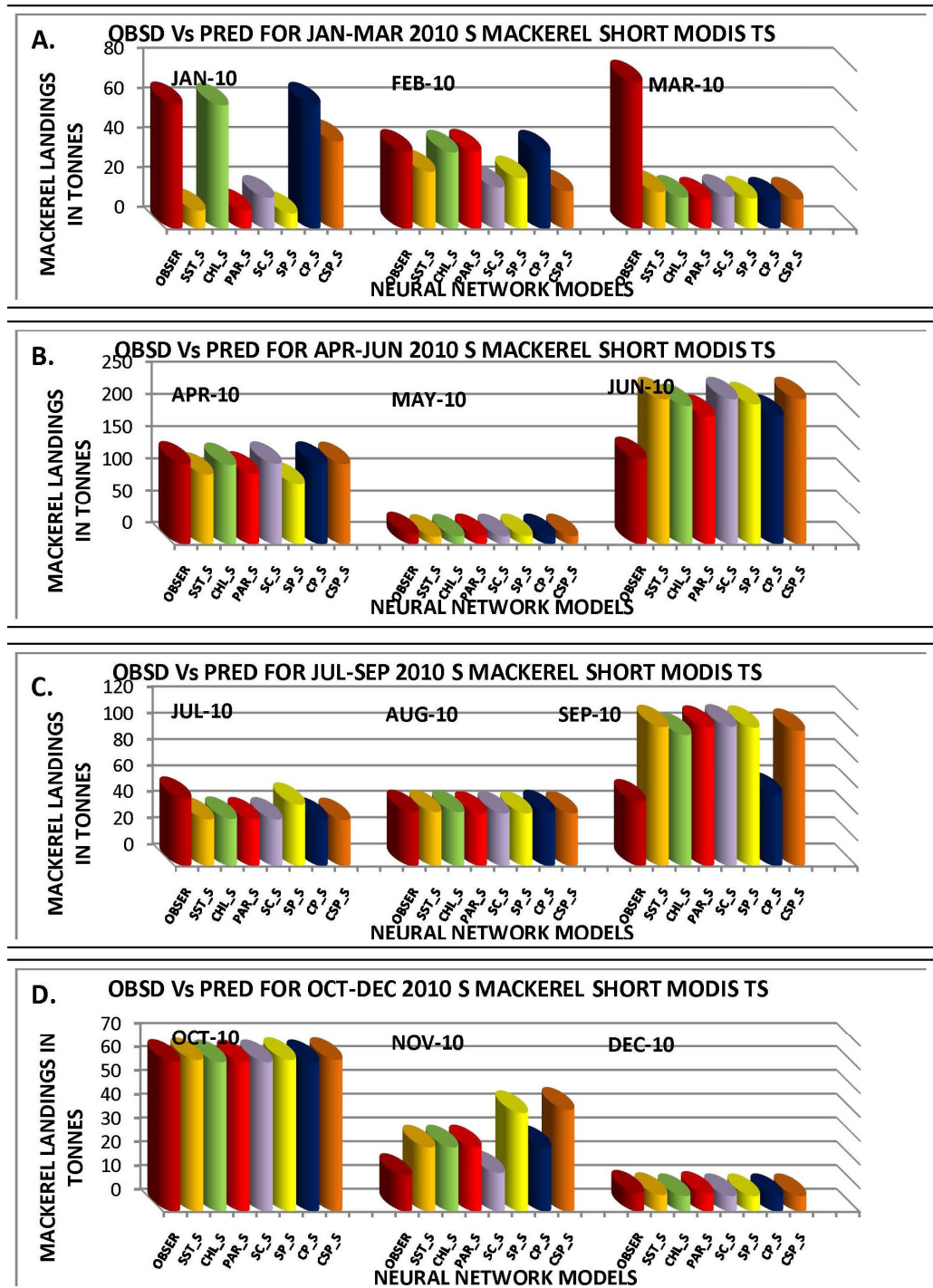
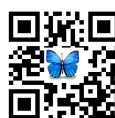


Figure 5.(b) STS (Modis) Mackerel Seasonal fit for all monthly combinations





Madhavan et al.

STS (Modis) Mackerel Neural Network Analysis

Table 1. Summary of STS (Modis) Mackerel Neural Network analysis

STS (Modis) MACKEREL NEURAL NETWORK ANALYSIS - *(MO-Modis)													
S.No	DESCRIPTION	R	R ²	MSE	RMS E	MA E	MAP E	E	ARV	SEP	MODE L	EPOCH	Ran k
1.	STS_MO_MAC_S ST_NS	-0.1801	0.0324	0.0002	0.012 2	0.009 5	74.01 79	- 1.202 2	2.202 2	100.61 76	1:07:01	3000	14
2.	STS_MO_MAC_S ST_S	0.7787	0.6064	0.0001	0.008 5	0.005 7	44.53 14	- 0.051 0	1.051 0	69.510 7	1:05:01	500	5
3.	STS_MO_MAC_C HL_NS	-0.1677	0.0281	0.0002	0.012 7	0.009 7	66.76 03	- 1.385 7	2.385 7	104.72 68	1:07:01	3000	13
4.	STS_MO_MAC_C HL_S	0.8411	0.7075	0.0001	0.007 1	0.004 1	33.17 32	0.255 1	0.744 9	58.518 1	1:05:01	500	2
5.	STS_MO_MAC_P AR_NS	0.3720	0.1384	0.0001	0.012 0	0.009 4	67.45 46	- 1.117 7	2.117 7	98.669 8	1:07:01	3000	9
6.	STS_MO_MAC_P AR_S	0.7766	0.6031	0.0001	0.007 5	0.005 1	40.12 23	0.174 8	0.825 2	61.591 8	1:05:01	500	6
7.	STS_MO_MAC_S C_NS	-0.0828	0.0069	0.0002	0.012 7	0.010 0	74.56 52	- 1.374 3	2.374 3	104.47 62	2:07:01	3000	11
8.	STS_MO_MAC_S C_S	0.8146	0.6636	0.0001	0.008 3	0.005 3	38.75 69	- 0.019 5	1.019 5	68.461 3	2:05:01	400	3
9.	STS_MO_MAC_S P_NS	0.5269	0.2777	0.0001	0.011 6	0.009 1	66.20 29	- 0.981 5	1.981 5	95.442 3	2:07:01	3000	8
10.	STS_MO_MAC_S P_S	0.7335	0.5380	0.0001	0.008 5	0.006 0	52.56 79	- 0.062 3	1.062 3	69.883 4	2:05:01	400	7





Madhavan et al.

11.	STS_MO_MAC_C P_NS	-0.1008	0.0102	0.0002	0.012 7	0.009 8	67.43 90	- 1.378 4	2.378 4	104.56 69	2:07:01	3000	12
12.	STS_MO_MAC_C P_S	0.8818	0.7776	0.00005	0.005 7	0.002 9	24.15 44	0.531 1	0.468 9	46.426 6	2:05:01	400	1
13.	STS_MO_MAC_C SP_NS	0.0011	0.0000	0.0002	0.012 3	0.009 4	66.16 39	- 1.203 9	2.203 9	100.65 78	3:05:01	3000	10
14.	STS_MO_MAC_C SP_S	0.8117	0.6589	0.0001	0.008 0	0.005 3	49.93 67	0.049 1	0.950 9	66.118 7	3:03:01	300	4





Optimizing and Training of Human Source by the Education and Talent Management

Abbas Rahimi

MCS of optimizing and training of human source

Received: 12 Jan 2015

Revised: 21 Feb 2015

Accepted: 18 Mar 2015

*Address for correspondence

Abbas Rahimi

MCS of optimizing and training of human source

Iran.



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License (CC BY-NC-ND 3.0)** which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

This paper addresses the paradigm shift in the way human resources managers are defining their mission and measuring their success using the concepts and techniques of talent development and management. The primary focus is on how organizations are resigning and rethinking talent processes, and using new technologies to transform the way human talent is managed to enhance performance. Talent management practices in both the public and private sectors are examined. (1)

In addition to discussion of pertinent perspectives, methodology and theory, survey information from human resource managers is used to explore drivers of talent management decision making in a variety of organizations. Consideration is also given to impending global workforce demographic challenges and how talent management can help prepare public sector organizations to address them. A brief review is then provided of the successful Implementation of talent management in Ontario Canada. Moreover, this paper gives attention to one of the key strategic human resource imperatives for contemporary public sector organizations: shifting to the Human Talent Development and Management Paradigm. (2)

Key words: Talent management, human performance, public sector executive resource.

INTRODUCTION

Here is growing recognition in the Human Resources (HR) profession of a need to shift away from valuing employees as mere capital assets toward what is described as the more salient tenets of human talents. This shift is more than just mere semantics. At its core is a fundamental change in how organizations value people, which includes changing how they recruit, develop, align, assess and retain employees. As Heidi Spirgi, President of



**Abbas Rahimi**

Knowledge Infusion, points out, the new focus on talent management represents " . . . a paradigm shift in the way HR defines its mission and measures its success" (Reuters, 2008). Research suggests that the talent management paradigm Spirgi envisions is an imperative for optimizing human performance in the public sector.(3)

This emerging paradigm can enable public sector organizations with a framework for redesigning and rethinking talent processes, and using new technologies to transform and enhance the way human talent performs (Spirgi and Corsello, 2009). Its application in the public sector can also help position policy makers to better respond to the growing global talent crisis. Moreover, talent management can serve as a vital management tool for achieving excellence in public service at all levels of government.(5)

Talent management

Research findings from several studies suggest that talent management is rapidly becoming recognized as a top management priority. A 2005 global survey of over 9,000 executives revealed that the supply of talent is ranked as their most significant managerial challenge. Similarly, a 2006 IOMA HR Critical Issues Survey found talent management to be the top issue for 75% of its respondents. The time priority executives give employee related activities also reveals the increased focus placed on talent management.(4)

Survey data gathered by the Economist Intelligence Unit indicate that executives allocate as much as 50% of their time for responding to talent management challenges. These include important employee related activities, such as:

1. Attracting and retaining enough talent at all levels to meet current and future needs;(3)
2. Creating a value proposition that appeals to multiple generations;
3. Developing a robust leadership pipeline;
4. Rounding out employees capabilities to prepare them for global leadership; and
5. Transferring key knowledge and relationships to new workers.

Studying about education management by example

The 2007 Manpower Inc. Annual Survey of nearly 37,000 employers in 27 countries reveals that 41% of companies worldwide have problems filling skilled positions. Forty-one percent of U.S. employers also report talent voids. Manpower's 2009 survey indicates a continuation of these talent shortages. Even in the current recession, 30% of employers worldwide report problems finding qualified candidates for skilled positions. As indicated in Table 1, Latin American, Australian and Asian employers are experiencing similar talent shortages Data suggest that this talent shortage is also impacting the public sector.(5)

Research findings indicate that 50% of U.S. federal, state and local employees are approaching retirement age (Ibarra, 2006). Governments in Canada are expected to lose up to 40% of their workers during the next five years (Eggers, Phelan and Phoenix 2008). Similar statistics are reported for governments in other regions as well. Replacement of these employees is expected to take up to 7 years of on-the-job training or 2.5 new employees to replace one skilled and experienced retiree. The challenge is made more pressing by skill gaps in younger workers.

Perspectives on optimizing of talent

The multiple approaches and diverse theories in the literature on talent management offer different perspectives of human talent activities in organizations.

These perspectives are categorized into three sets for discussions in this paper. The first set is derived primarily from scholarship on business enterprises. A second addresses social movement issues, which are linked to talent management. And, the third focuses on roles of individuals and achievement of performance outcomes. Collectively,



**Abbas Rahimi**

these perspectives provide an expansive body of information that can inform and contribute constructs for a public sector talent management system. (5)

Eddie Blass (2007) summarizes the Enterprise Perspectives on talent management in his work for the Chartered Management Institute, which is subtitled "Maximising talent for business performance". These perspectives approach talent management as a "return on investment". As Blass notes, "finding the right measure of return on investment is important and should stem from the perspective that is driving the talent management strategy." His work describes how different enterprise perspectives might measure return on investment. Blass's framework for analyzing these perspectives consist of five factors: (1) Core Belief; (2) Recruitment and selection; (3) Retention; (4) Succession; and (5) Talent Development. These factors are offered as common operational dimensions of organizations that conform to the enterprise perspectives on talent management and are used in this paper to analyze other sets of perspectives as well.(4)

Analysis the aim of this paper

The Humanistic Perspective on talent management focuses on people as the center of and purpose for organizations. It has two threads: Intrinsic value and Human Development. The Intrinsic Value thread stresses the innate worth of humans and nonconformity of their labor attributes to market precepts, such as human capital. Human Development parallels and, draws impetus from the United Nations Human Development Index. Both threads emphasize human needs, albeit different arrays of these needs.

CONCLUSION

1. The Gender Perspective advances the position that female talent is critical for the synergism necessary to achieve and sustain success, particularly in the knowledge economy where women are expected to make up nearly half of the workforce and a majority of consumers.
2. While every man and woman is said to have varying degrees of both masculine energy and feminine energy, the call is for a correct synergy of these energies within organizations.
3. Human talents as those knowledge assets workers use to produce outcomes for the organization. That is, workers know that they are the organization's greatest assets because they possess the expertise and knowledge necessary for achieving and sustaining success.(5)

REFERENCES

1. Manpower INC (2009), The Global Talent.
2. National Science Board (2006). America's Pressing challenge.
3. Nisen, Jeremy (2008), More companies embrace. Diversity (Sept. 3, 2008).
4. Office of management and human source (201))2009).
5. Rapp port A, E. Bancroft, and L. ovum (2003). The knowledge and talent management.
6. Smutniak, J. (2004). Workforea education management.





Anti Microbial Rosa Canina Efficiency and Antimicrobial Properties of Plants

Ali Solhjuye Garamaleki

MCS of Microbiology.

Received: 18 Jan 2015

Revised: 21 Feb 2015

Accepted: 19 Mar 2015

*Address for correspondence

Ali Solhjuye Garamaleki

MCS of Microbiology

Iran.



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License** (CC BY-NC-ND 3.0) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

Promoting environmental and health education is crucial to allow students to make conscious decisions based on scientific criteria. The study is based on the outcomes of an Educational Project implemented with Portuguese students and consisted of several activities, exploring pre-existent Scientific Gardens at the School, aiming to investigate the antibacterial, antitumor and anti-inflammatory properties of plant extracts, with posterior incorporation in soaps and creams. A logo and a webpage were also created. The effectiveness of the project was assessed via the application of a questionnaire (pre- and post-test) and observations of the participants in terms of engagement and interaction with all individuals involved in the project. This project increased the knowledge about autochthonous plants and the potential medical properties of the corresponding plant extracts and increased the awareness about the correct design of scientific experiments and the importance of the use of experimental models of disease.(1)

Key words: autochthonous plants; pharmacological properties of plant extracts; experimental models of disease, Rosa canina.

INTRODUCTION

In many countries, plants are also widely used to treat inflammatory conditions, in particular skin inflammation. The phenolic compounds obtained from plant extracts have considerable anti-inflammatory properties. A study conducted by Falcao and co-workers reported a list of seventy-five plant species with anti-inflammatory activity. The leaves of *Bouchea fluminensis* contain iridoid and steroid glycosides that have anti-inflammatory properties. The extract of *Hyptis pectinata* leaves similarly exhibited a significant antiedematogenic activity. Another work studied the effect of *Pterodon pubescens* seed extract in an arthritis animal model for preventive and therapeutic antiarthritis





Ali Solhjuye Garamaleki

treatment. These authors demonstrated that preventive treatment significantly reduced the arthritic index and arthritis incidence. Franzotti and co-workers discovered the anti-inflammatory properties of *Sida cordifolia* plant extract, and Gupta and co-workers discovered that plant extracts of *Bauhinia racemosa*, a small tree widely distributed throughout India, Ceylon, China and Timor, also possess potent anti-inflammatory activity.(2)

Hands-on activities are great student motivators, not only by improving the quality of science education but also by awakening environmental and ethical awareness. Direct contact with living organisms provides information and experiences that are not accessible by reading, viewing pictures or examining models. Thus, we developed a hands-on activity with basic-school students. We selected six autochthonous plants from Portugal, harvested from the school's scientific gardens: *Cistus populifolius*, *Crataegus monogyna*, *Erica australis*, *Helichrysum stoechas*, *Lavandula pedunculata* and *Rosa canina* and we prepared plant extracts and assessed their antimicrobial, anti-inflammatory and antitumor properties. The experimental activities were performed with Portuguese 8th grade students from D. Maria II School, V.N. Famalicao.

The interest of students in subjects such as plant properties can increase significantly if teachers and researchers are involved, when appropriate methodologies are used. According to Azevedo et al., laboratory work seems to be valuable in Science Education and another recent study describes the educational benefits of incorporating hands-on activities in science education programs.

Experimental Section

The specific research questions addressed by this project were: to what extent: (a) are students familiar with the term autochthonous plants and can identify some Portuguese autochthonous plants; (b) are students familiar with the term plant extracts and how these can be prepared; (c) are students familiar with the antimicrobial, antitumor and anti-inflammatory properties of plants; (d) can students classify microorganisms into their main categories, and identify some pathogenic ones; (e) are students familiar with the importance of the correct design of scientific experiments and the value of experimental models; students know how new medicines are discovered; (f) these activities motivate students.(3)

The activities of this study were developed between March and June 2014. This research project involved two schools (D. Maria II (n = 19) and Arnoso S. Maria (n = 19), [control group]), both belonging to School Cluster D. Maria II. V.N. Famalicao, Braga district (Table 1). For this work we used a convenience sample. The participants (D. Maria II: females (n = 6) and males (n = 13) aged between 13 and 15 years old; Arnoso Sta. Maria: females (n = 8) and males (n = 11) aged between 12 and 16 years old) attended the 8th grade. This study was approved by the School Board of D. Maria II, V. N. Famalicao, after a hearing by the Pedagogic Council because there is no ethics committee at the school. Student participation was anonymous and voluntary. Informed consent was obtained verbally from the students' guardians on behalf of the students enrolled in our study. This consent was obtained during a regular meeting, in which the director of the class explained the aims of the project and requested authorization from the parents for their children to participate. Verbal consent was agreed upon by the School Board, class director and the students' guardians. Written informed consent was obtained from the students' guardians for the pictures shown in the manuscript. All the other data used in this study was anonymized.(3)

Comprehensive research about anti microbial of *piosa canina*

To study the antimicrobial, antitumor and anti-inflammatory activities of the plant extracts, the following species were selected from the Scientific Gardens: *C. populifolius*, *C. monogyna*, *E. australis*, *H. stoechas*, *L. pedunculata* and *R. canina*. Under the guidance of Professor Alberto Dias (AD, University of Minho-UM), the students prepared water and ethanol extracts of these plants and determined their phytochemical composition by high liquid pressure chromatography (HPLC-DAD-MS). Subsequently, the antimicrobial, antitumor and anti-inflammatory activities of





Ali Solhjuye Garamaleki

these extracts were evaluated. This activity was held at the School of Health Sciences (UM) under the guidance of Professors Maria Manuel Azevedo (MMA), Fatima Baltazar (FB) and Filipa Ribeiro (FR).(4)

The antimicrobial activity of extracts was tested in bacterial and fungal strains, including *E. coli*, *S. aureus*, *S. epidermidis* and *C. albicans*. At the beginning of this session, students were warned about the safety issues concerning work in a microbiology laboratory, including appropriate procedures, methodologies in handling microbial cultures, the type of biological safety cabinets used in microbiology laboratories (Class I, II and III) and basic rules for handling laboratory animals.

Analysis of effects of *Rosa canina* and antimicrobial plants

The specific objective of this activity was to create a direct contact between students and researchers from the areas addressed in the project. This activity included a lecture performed by three specialists, followed by an active discussion (lasting about 1.5 h).(4)

The lecture "Antimicrobial, antitumor and anti-inflammatory activity of autochthonous plants" was conducted by FB, FR and AD from the University of Minho. Initially, AD focused his intervention on the history of science emphasizing the use of plant extracts, revisiting the civilizations of Mesopotamia and Egypt, the Middle Ages, the Renaissance, up to the present. Subsequently, he presented several examples of the applicability of ointments/creams made from plant extracts with preventive/curative purposes. FB focused on the antimicrobial and antitumor properties of plant extracts, referring to examples in the literature that demonstrate their use in combating infectious diseases and cancer. Finally, F Z commented on the anti-inflammatory properties of plant extracts, referring to examples that demonstrate their use beginning in ancient times to treat inflammatory diseases. This lecture was supported by a Power point presentation and was finalized by presentation of a film illustrating the various steps of the project. The preliminary results of the antimicrobial, antitumor and anti-inflammatory activities were shown to the students at this point, highlighting their potential but also the need to repeat the experiments and use additional controls to confirm the results.

RESULTS

1. The data collected showed an overall improvement of the participants' understanding of the concepts of autochthonous plants their features and identification. In particular, there were significant differences for question Q5e. For the group II questions, there was a general improvement of the participants' understanding of most of the concepts. (5)
2. Regarding the control group, no significant improvements were detected, with the exception of question Q9c. Overall; there were significant improvements in the quality of the participants' responses, as demonstrated by the enhanced scores for the questions presented.
3. No relevant difficulties were identified during the execution of the described activities. Most students knew that plants may produce substances with pharmacological interest; however, they did not know. hat the plant extracts could be used to inhibit the growth of bacteria/fungi or cancer cells.(6)

REFERENCES

1. School D. Maria II, Rua da Alegria, 4760-067 Vila Nova de Famalicao, Portugal.
2. Department of Microbiology, Faculty of Medicine, University of Porto, 4200-319 Porto, Portugal
3. Life and Health Sciences Research Institute (ICVS), School of Health Sciences, University of Minho,
4. ICVS/3B's-PT Government Associate Laboratory, 4710-057 Braga/Guimaraes, Portugal.
5. Barretos School of Health Sciences, Dr. Paulo Prata-FACISB, 14784-400 Barretos, Sao Paulo, Brazil.
6. MolecIar Oncology Research Center, Barretos Cancer Hospital, Pio XII Foundation, 14784-400.





Discussing the Effect of Complexity of Supply Chain on the Performance of Iran's Automotive Industries

Abbas Shoul^{1*}, Ali Yaghoubi Pour² and Majid Yazdani Nia³

¹Rafsanjan Universities' faculty member of department of industrial management, Rafsanjan, Kerman, Iran; Abbas.shoul@gmail.com

²Management department faculty member, Sirjan branch, Islamic Azad University, Sirjan, Iran; Yaghoubipoor@yahoo.com

³Evolution management department, Sirjan branch, Islamic Azad University, Sirjan, Iran; Majidyazdaniniya@gmail.com.

Received: 18 Jan 2015

Revised: 21 Feb 2015

Accepted: 19 Mar 2015

*Address for correspondence

Abbas Shoul

Rafsanjan Universities' faculty member of department of industrial management, Rafsanjan, Kerman, Iran.

E-mail: Abbas.shoul@gmail.com



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License** (CC BY-NC-ND 3.0) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

Since the complexity of supply chain is one of the most important concerns for managers, exact and appropriate comprehension of complexity patterns and optimized realization of their effects on an organizations' performance can provide the context for development of the whole societies' growth, industries, economy and business. In this paper, the effects of these complexities on the performance of Iran's major automotive production companies are assessed through implementation of supply chain complexity model in addition to field studies. The results indicate that all initial, internal production and the final complexities of the supply chain have meaningful negative effects on the performance of the subject industrial factories. This research has established a connection between the literature of systems complexity and rules of supply chain in order to provide a definition of supply chain complexity and to provide a field test for its assessment. The final section of the research includes suggestions for future researches.

Key words: Supply chain management, system complexity, supply chain complexity.



**Abbas Shoul et al.**

INTRODUCTION

During the past few years there have been significant changes in comprehension of optimization of environmental and social performance in firms [7]. The growing procedure of globalization has intensified business competitions and has led to decline in global gross profits of many industries [12]. In global economics, the managers of supply chains should be quiet expert in controlling interrelated relations which bonds the supply chain [3]. According to SCM, it's not suitable for different businesses to implement domains of operational management, source finding and patronage separately or in weak bonds as an advantage. They should manage and develop information, physical flows and relations which bond these domains and also relates them to upstream and downstream associates. For instance, life cycle of the products has become shorter, level of diversity of products has increased based on costumers' orders and supply chain associates have been more disperse in terms of geographic distances. As a result, firms are after establishing mutual relations with their associates in supply chain in order to have more competitive advantages, flexibility and better efficiency [10]. It is obvious that management of supply chain is a rather challenging mission and most experts believe that supply chain is a complex system. Although there have been much attention paid to reasons for necessity of deployment of gamut and depth of supply chain activities in companies, it was just recently that scholars and firms' managers noticed the losses resulting from increase of complexity in supply chain [6].

Supply chain complexities have always been a matter of concern for managers; as a result we can deploy the necessary contexts for growth and development of economic development of our society through appropriate comprehension of complexity patterns and optimized realization of their effects on firms' performance. Full and exact comprehension of research findings seems extremely necessary.

In this research, some concepts and terms of systems' sciences are implemented in order to define the complexity of supply chain and its different dimensions which make it a truly complex system. For field defining of supply chain complexity, the effects of different sources of complexity including initial complexities of the chain, internal production and final complexities of the chain on Iran's automotive industries' performance are discussed. Obtained results will define the influence of complexity sources on the performance of Iran's automotive production industries.

LITERATURE

Initially, a brief definition of supply chain and its management is provided for the purpose of understanding these concepts and next, the system's complexity literature and its implementation in supply chain's complexity literature are provided.

Supply chain and its management

Producers have always been after establishing long term connections with their suppliers in order to supply their required technologies and valuable sources, benefit from suppliers' expertise and capabilities, and control them and to increase the quality and optimization of their products [8]. Companies who have mutual relations will benefit the advantages of higher service quality, better visibility, more flexibility, more customer satisfaction and reduction of supply cycles [10].

Nowadays, in dynamic economic environments, many companies have noticed that traditional business models require reassessing which could be carried out through increased partnership among associates and sharing more information in associates' businesses for the purpose of preventing the supply flows from collapsing. It is obvious that associate companies are more successful compared to sole companies [11]. Taylor vindicates the theory that competition have moved towards supply chains in new economy [15]. Supply chain is a network consisted of



**Abbas Shoul et al.**

processes and activities which create value for the final consumer as products and services [9]. In order to obtain competitive advantages, companies require supply chain management in existing dynamic economic environments. Supply chain management is a concept emerged from manufacturing industries. This concept is developed from innovations such as JIT and TQM [13]. Supply chain management is a holistic and strategic approach for management of demand, purchase operation and provisions processes [15].

System complexity

Complexity is discussed in wide range of sciences including philosophy, physics, engineering and management. In addition to this, many questions remain regarding the different definitions of constituents of a complex system. Results obtained from aforementioned discussions are mostly implemented in studying, researching, predicting and controlling amorphous systems and organizational theory literature. Such discussions have also found a way in the domain of supply chain management [1].

Supply chain managers must acknowledge that complexity is a key managerial issue and since its related definitions have been discussed by numerous authors, there is a wide range of definitions available for this issue. Several basic researches are mentioned in organizational theory literature with concentration on studying, predicting and controlling amorphous systems [5].

By a complex system, we generally mean a system which is consisted of several constituents which interact in a complex manner [14]. This complexity-countless constituents two dimensional schema can also be found in another definition. Complexity refers to two dimensions of the system: A) mathematical construction of irresolvable elements of processes' sub systems and B) the manner in which elements are connected to form a system [4].

A complex system is a system which includes one or more than one of the following properties:

Meaningful interactions 2) Numerous elements 3) Non-linearity 4) Convergence and fragile relativity and 5) Heterogeneous and antithetical limitations. The last three elements are related to high level of complexity since these properties make prediction more difficult over time. The non-linearity property is emerged when system response is irrelevant to the input. The two last properties emerge when some parts of the system are unreachable by other parts. This phenomenon could be a result of lack of convergence or existence of heterogeneous limitations which itself is developed through transpiration of one or some parts of the system out of the central control [1].

Complexity of supply chain

Supply chain is highly complex. Even with existence of such a high complexity to the supply chain, it can still be operated by means of three distinct parties: supply chain processes, supply chain network structure and management components [15].

Complexity of supply chain is a level of dynamic and detailed complexities (detailed complexity is defined as a number of distinct elements or components which make up a system, while dynamic complexity refers to lack of ability to predict the reaction of the system towards a set of input and interrelations between countless parts that make up a system) which is shown by products, processes and relations which create a supply chain [1].

Wide distribution networks can be regarded as a type of supply chain management. This type of complexity is a by-product of wide internal relations of supply networks. In this location, most suppliers are connected to multiple supply chains which finally lead to production of several distinct good which are most often unpredictable, to be consumed by the end users [1].





Abbas Shoul et al.

Supply chain complexity may also emerge within factories (what is referred to as internal complexity), or even through relationship of factory with associates at the beginning or the end of the chain (initial and final complexity of the chain).

Complexity of the end of the chain

Complexity of the end of chain is a level of dynamic and detailed complexity which is originated from industrial facilities of factories at the end of the chain. Its potential causes include number of costumers, heterogeneity of customer needs, products' average life cycle and demands' variability [1].

Complexity of the outset of the chain

Complexity of the outset of chain is defined by a level of dynamic and detailed complexities caused by industrial facilities in supply layer. Its potential causes include: number of connections with the supplier to be managed, delivery time, possibility to trust suppliers and source finding range [1].

Complexity of internal production

Complexity of internal production is defined as a level of dynamic and detailed complexities which are evident within products', services' and control and programming systems' industrial facilities. Its potential causes include number of covered sections and products, all types of industrial processes and stability of industrial programs' timing in different periods [1].

Supply chain and performance

Performance of supply chain management is known as the main stimulus for the performance of the entire factory [12]. Many studies indicate that there is a direct relation between relations and partnership in supply chain and performance optimization. Companies which have long term relations depend on relation oriented exchanges and trades which lead to increase in profits in trades and maximizes their profits [10].

Measurement of performance for the company means optimization of effectiveness of supply chain and critical efficiency [2]. There are several factors for measuring performance of a company among which it can be referred to level of profitability, customer satisfaction, market performance condition, products and services quality, evolution in companies' physical and incorporeal capitals and etc. each researcher choses his or her desired factors depending on the type of their research. Since our purpose is to discuss the effect of supply chains' complexity on Iran's major automotive manufacturing companies, we have chosen factors of accessing timing schedule, customer satisfaction level and factories' competitive performance in market.

Research hypotheses

1. Complexity of the onset of supply chain has negative effects on performance of automotive manufacturing factories.
2. Complexity of internal production has a negative effect on performance of automotive manufacturing factories.
3. Complexity of the end of supply chain has a negative effect on performance of automotive manufacturing factories.





Abbas Shoul et al.

RESEARCH METHODS

In order to discuss the effect of complexity of supply chain on industrial factories' performance, we selected a society which features both dimensions of industrial factories and factories with advantageous technologies. Since the engine for every countries industry is its automotive manufacturing industry, we decided to select the large automotive manufacturing industry of Iran in order to verify existence of complex supply chains among them. This sample includes six automotive manufacturing companies (IKCO, SAIPA, Bahman Group, ZAMIYAD, IKCO DIESEL and KERMAN Motors) which are randomly selected from the list of automobile manufacturing factories.

With respect to essence of the subject, questionnaires are used in this research. This questionnaire is based on Likert scale in a way that options are respectively arranged from 1(very low / least importance) to 9(very high / most necessary). The questionnaire was exposed to some CEO's of aforementioned companies in order to approve the validity. Also for the purpose of scrutiny of questionnaires' stability, prior to distributing the questionnaires among subject factories, a number of these questionnaires were distributed among smaller factories (Rafsanjan Industrial Park) and the results indicated high stability of the questionnaire (table.1)

The questionnaire includes 39 questions five of which are related to the complexity of the onset of the supply chain, eight related to complexity of internal production, five related to complexity of the end of supply chain and 21 are related to performance (4 questions are related to accessing timing schedule, 12 are related to level of competitive performance and five related to customer satisfaction level).

12 questionnaires were distributed among different managers and authorities of each company. Ultimately after distributing 72 questionnaires among six aforementioned automobile manufacturing companies, unfortunately only 57 of these questionnaires were collected back due to lack of cooperation of a number of managers (8 from IKCO, 10 from SAIPA, 11 from BAHMAN Group, 9 from ZAMIYAD, 8 from IKCO DIESEL and 11 from KERMAN Motors). Since in this research the effect of one element on the other is proposed and the relation is one way, regression and correlation analyses are implemented for data analysis (SPSS).

Data analysis

in this section, first we try to analyze correlation between variables and then we will try to analyze research assumptions through regression analysis separately. With respect to results of table 2. Negative correlation is obviously evident between each of the three parts of complexity (complexity of the onset of chain, internal production and end of the chain) and performance.

Analysis of first hypothesis

First hypothesis suggests that high levels of complexity of supply chain's onset, has a negative effect of automobile manufacturing factories. With respect to significance level of the test (subjects' significance level is less than 0.01) the first hypothesis which suggests negative effect of complexity of the onset of chain on performance of automobile manufacturing factories is approved and accepted (Table 3.)

Since populations' regression line function is $y = \alpha + \beta x$, it is obvious that β indicates the type of relation between dependent and independent variables. As we can see in table 3, it is the coefficient of independent variable which means that the more level of complexity in the onset of the chain increases, the more declines in Iran's automobile manufacturing factories' performance are suffered.



**Abbas Shoul et al.**

With increase in the number of suppliers, physical and information processes and relations which must be managed by the factory also increase. Change in the number of suppliers and products' delivery time leads to collapse of timing schedules for required material. This issue has effects on cohesion of process of production. In automobile manufacturing factories, all sections are connected to each other like chain loops. In case of emergence of problems in raw material supplication section, production lines suffer from delays, work force is wasted and factory bears losses. As a result, efficiency is declined and the factory will no longer be accountable for its customer demands.

It is obvious that with deployment of source finding range and dispersion of suppliers on one hand and decline in trust in on time delivery of goods on the other hand lead to increase in uncertainty in programming and makes it difficult to manage such complex relations.

Analysis of second hypothesis

The second hypothesis suggests that high level of complexity in internal production leaves a negative effect on automobile manufacturing companies' performance.as we can see in table 4; significance level is less than 0.01. This information approves the second hypothesis suggesting a negative effect of complexity of internal production on performance of automobile manufacturing factories. With respect to table 4; after doing calculations, the coefficient of independent variable is obtained as negative which means that as the level of complexity in internal production increases, Iran's automobile manufacturing factories' performance declines?

The reason for negative effect of internal production complexity on performance is that with increase of sections and covered products, the variety of relations and activities to be managed increases. A brief look at organizational diagram of subject factories before and after introduction of a new product reveals everything. Clearly, as more complex the products and their related production process becomes, the complexity of relations among them also increases and it becomes more difficult to manage this relation. Our results indicate that also the performance of industrial unit declines.

Analysis of third hypothesis

Third hypothesis suggests that high level of complexity at the end of supply chain has a negative effect on automobile manufacturing factories. With a brief look at table 5; it can be seen that third hypothesis suggesting a negative effect of complexity of the end of supply chain on automobile manufacturing industries, is approved and accepted.

In nowadays' competitive world, customers are considered as highly important parts of supply chain. End users of all goods and products are sources of benefits for all the chain, as a result customer relations management becomes significantly important. Firms which are faced with several costumer demands due to type of activity or market condition, have already noticed the effect of variety in their needs and heterogeneity of these needs and requirements. According to bullwhip effect of demand fluctuations, with moving from the end towards the beginning of the supply chain, severe changes are carried out in the chain. As result, with increase of changes in demands, number of customers and heterogeneity of their needs, efficiency of factories is declined and on the other hand, decline in average life cycle of the products also intensifies this complexity. Our research findings approve these statements.

CONCLUSIONS AND RECOMMENDATIONS

In todays' economy, competition has moved toward supply chain. Companies which are able to manage supply chain well are considered as successful companies. Industrial factories must preserve their relations with their





Abbas Shoul et al.

customers and suppliers in order to stay competitive. This fact leads to decrease in complexity of their supply chain and as a result, their industrial performance and competitiveness increases.

High complexity in supply chain is like activity in a chamber filled with smoke and prohibits effective activity and adds uncertainty to obtained results. Some company might have a high capacity but as a result of its intertwined confusing relations with its customers and suppliers, is not able to improve its working efficiency.

In this research we have tried to show the negative effect of complexity on automobile manufacturing industrial factories in Iran. Results have verified this fact and opened the way for future researches. In the following there are recommendations in this context: 1) with respect to possibility of diversity of complexity in different industries, it is recommended that future researches focus on differences between complexity in different industries and effect of these differences on industrial factories' performance. 2) it is obvious that activity in uncertain environments requires appropriate strategic decisions to be made, and since uncertainty increases complexity, it is recommended to discuss the effect of making different strategic decisions by companies on their related supply chains' complexity. 3) to what extent factories' decision makers are familiar with complexity of the supply chain? Future researches can be focused on the effect of managers' decisions on complexity of the supply chain and also effects of their unawareness from results of such decisions. 4) It is recommended to discuss the effect of geographical dispersion, different cultures and macro economics' different policies on complexity of supply chain and performance of industrial units.

REFERENCES

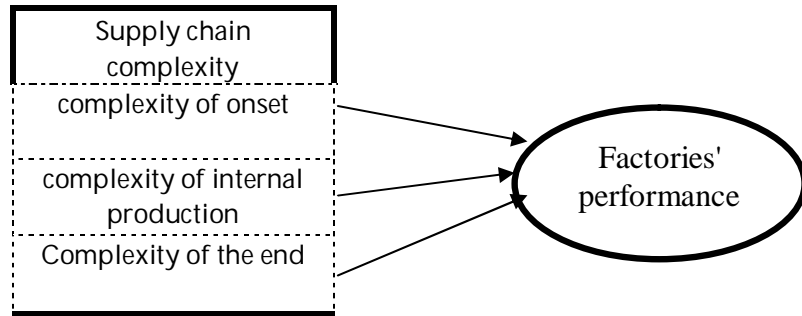
1. Bozarth, C. C., Warsing, D. P., Flynn, B. B., Flynn, E. J., 2009. The impact of supply chain complexity on manufacturing plant performance. *Journal of Operations Management* 27, 78 – 93.
2. Cai, J., Liu, X., Xiao, Z., Liu, J., 2009. Improving supply chain performance management: A systematic approach to analyzing iterative KPI accomplishment. *Decision Support Systems* 46, 512–521.
3. Cantor David, E., Macdonald John R., 2009. Decision-making in the supply chain: Examining problem solving approaches and information availability. *Journal of Operations Management* 27, 220 – 232.
4. Casti, J.L., 1979. *Connectivity, Complexity and Catastrophe in Large-Scale Systems*. John Wiley & Sons, New York.
5. Choi, T. Y., Krause, D. R., 2006. The supply base and its complexity: Implications for transaction costs, risks, responsiveness, and innovation. *Journal of Operations Management* 24, 637–652.
6. Hoole, R., 2006. Drive complexity out of your supply chain. *Supply Chain Strategy Newsletter*, issue December 2005–January 2006. Harvard Business School Publishing, Boston.
7. Jose, M. Cruz., 2009. The impact of corporate social responsibility in supply chain management: Multicriteria decision-making approach. *Decision Support Systems*.
8. Kalwani, M. U., Narayandas, N., 1995. Long-term manufacturer-supplier relationships: do they pay off for supplier firms? *Journal of Marketing* 59 (1), 1–16.
9. Neiger, D., Rotaru, K., Churilov, L., 2009. Supply chain risk identification with value-focused process engineering. *Journal of Operations Management* 27, 154 – 168.
10. Nyaga, G. N., Judith, M. W., Daniel, F. L., 2009. Examining supply chain relationships: Do buyer and supplier perspectives on collaborative relationships differ?. *Journal of Operation Management*.
11. Pereira Verissimo, J., 2009. The new supply chain's frontier: Information management. *International Journal of Information Management* 29, 372 –379.
12. Reham, A. Eltantawy., Giunipero, L., Gavin, L. Fox., 2009. A strategic skill based model of supplier integration and its effect on supply management performance. *Industrial Marketing Management*.
13. Saad, M., Jones, M., James, P. 2002. A review of the progress towards the adoption of supply chain management (SCM) relationships in construction, *European Journal Of Purchasing and Supply Management* 8, 173–183.
14. Simon, H. A., 1962. The architecture of complexity. *Proceedings of the American Philosophical Society* 106 (6), 467–482.





Abbas Shoul et al.

15. Wing, S. C., Christian, N. M., Chu-Hua, K., Min, H. L., Chinho, L., Hojung, T. 2006. Supply Chain Management in the US and Taiwan: An empirical study. Omega 36, 665 – 679.



Conceptual model: effect of supply chain's complexity on factories' performance

Table 1. Questionnaires' stability

performan ce	Complexity of supply chain	Complexity of the end of supply chain	Complexity of internal production	Complexity of onset of supply chain	Elements
0.809	0.907	0.710	0.797	0.777	Stability

Table 2. Correlation among research variables

	X ₁	X ₂	X ₃	
Pearson Correlation	1	.822**	.737**	-.671**
Sig. (1-tailed)		.000	.000	.000
N	57	57	57	57
Pearson Correlation	.822**	1	.750**	-.699**
Sig. (1-tailed)	.000		.000	.000
N	57	57	57	57
Pearson Correlation	.737**	.750**	1	-.645**
Sig. (1-tailed)	.000	.000		.000
N	57	57	57	57
Pearson Correlation	-.671**	-.699**	-.645**	1
Sig. (1-tailed)	.000	.000	.000	
N	57	57	57	57

X₁: Complexity of the onset of chain (independent variable)
 X₂: Complexity of internal production (independent variable)
 X₃: Complexity of the end of chain (independent variable)
 Y: Performance (dependent variable)





Abbas Shoul et al.

Table 3. Regression model of the first hypothesis

Model	Unstandardized Coefficients		Standardize d Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	8.396	.420		19.973	.000
X ₁	-.509	.076	-.671	-6.711	.000

Table 4. Regression model of second hypothesis

Model	Unstandardized Coefficients		Standardize d Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	8.125	.354		22.943	.000
X ₂	-.551	.076	-.699	-7.254	.000

Table 5. Regression model of third hypothesis

Model	Unstandardized Coefficients		Standardize d Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	8.259	.428		19.296	.000
X ₃	-.481	.077	-.645	-6.266	.000





RESEARCH ARTICLE

Discussing the Relation between Knowledge Management Processes and Competitiveness

Ali Yaqoubi-Pour^{1*}, Abbas Shoul², Mohamad-Reza Namdar³ and Majid Yazdani-Nia⁴

¹Management department faculty member, Islamic Azad University Sirjan branch, Iran; Yaghoubipoor@yahoo.com

²Rafsanjan Universities' faculty member of department of industrial management, Rafsanjan, Kerman, Iran; Abbas.shoul@gmail.com

³MBA M.A Student of Kerman Bahonar University

⁴Evolution management group, Sirjan branch, Sirjan Islamic Azad University, Sirjan, Iran; Majidyazdaniniya@gmail.com.

Received: 18 Jan 2015

Revised: 21 Feb 2015

Accepted: 19 Mar 2015

*Address for correspondence

Ali Yaqoubi-Pour

Management department faculty member,
Islamic Azad University Sirjan branch, Iran;
Yaghoubipoor@yahoo.com



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License (CC BY-NC-ND 3.0)** which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

Uncertainty, which is a result of repetitive evolutions in environmental constituents, has forced several organizations and firms of global competitions to take a different behavior different from what has been stated in management theories; which can be referred to as knowledge management. Knowledge management and its related domains emphasize on the fact that in today's competitive world, obtaining a sustainable competitive advantage is in debt to organizations' capacity and ability for appropriate implementation of sources which are based on organizations' knowledge. Although, the entire human resources are not of an equal importance for obtaining this competitive advantage. Recently, knowledge has become a main part of industrial sources and also a requirement for success in the context of production. Furthermore, an effective element on obtaining competitive advantages. With respect to mentioned data, in this research, the relation between knowledge management processes and competitiveness in Kerman Provinces' industries is discussed. Results indicate that there is a meaningful relation between knowledge management processes and competitiveness.

Key words: Knowledge Management Processes, Competitiveness, Case study





Ali Yaqoubi-Pour et al.

INTRODUCTION

Nowadays not only knowledge and its intangible attachments have led to locomotion of businesses, but also they are counted as the entire or a part of productions of service and product suppliers. Peter D. in his popular paper named "In search of perfection" considering necessity of implementing new knowledge in organizations, States: Knowledge continuously discards itself, and today's knowledge is tomorrow's ignorance. He suggests that knowledge management must take place in humans' first attention focuses. In this period, work force, ground and capital are in the second order of importance. Every investing country must pass this period in order to success among modern worlds' accelerated and bold evolutions. Knowledge management techniques and instruments in classic production are gradually corrected but there has been no practical progress in creating expert instruments for knowledge holding management, as a result, organizations usually make little use of their intellectual sources. The obvious is prioritization of attention to the issue of knowledge and its management in 21 centuries' organizations.

Knowledge environment in which organizations should take actions is extremely more complex in terms of construction compared to pre-existing environments. This is mostly due to three related procedures which include explosive growth rate of knowledge, level of knowledge analysis and globalization of the process of knowledge (Probst, 2000). In terms of quantitative measurements, human knowledge has progressively increased. After invention of printing machine by Gutenberg, it took more than three hundred years for the whole globe's knowledge to duplicate and after that time, this knowledge is duplicated every five years. For instance, book production rate was equal to five hundred years after invention of print machine (Badaraco 1991:17 and Arthur Andersen 1996:7).

Now the important question is that how and by whom knowledge management is carried out in organizations. In research literature we have tried to explain knowledge management through providing definitions in order to provide lighting on its relation with competitiveness in organizations. Knowledge management is a wide range of activities applied for management, transaction, creation or promotion of intellectual capitals in an organization. In other words, capability of knowledge management is more than just a canister for information and knowledge. In fact knowledge management is an apparatus for maintenance of information in order to make affairs more efficient.

In the following paragraphs, first we try to provide a brief definition of knowledge and then we discuss different approaches for knowledge management and conclude the paper through discussing the relation between knowledge management and competitiveness in Kerman provinces' industries, in addition to a concise explanation about competitiveness.

RESEARCH LITERATURE

Knowledge

Knowledge is the only source which increases through implementation. Nowadays knowledge has been extensively focused on as a competitive element.

Firms are forced to benefit from the knowledge which is buried in their staff minds. In many firms, 75 percent of the added value is surrounded by special knowledge (Quinn 1992, 1993). Knowledge is based on data and information but unlike them, it's always restricted to individuals. As a result, knowledge, data and information management should always be synchronized. Knowledge is the set of entire cognitions and skills which are implied by individuals for solving problems (Probst, 2000). Generally, knowledge is information which is shaped inside a human mind (Alavi and Leidner, 2005). In fact, knowledge management is a process through which organizations produce values mediated by intellectual and reasonable properties and their knowledge bases (Santosus and Surmec, 2001).





Ali Yaqoubi-Pour et al.

Knowledge management

First we provide several definitions of knowledge management, and then we count its constituents and finally discuss its processes.

Knowledge management is a deploying process with zigzag movement which manages the knowledge which is produced over time (Nonaka and Kono, 1991), which also known as one of the necessary requirements for investing in competitive environments. Knowledge management is a smart design of processes, apparatus and structures aimed at increasing, renovation and optimization of implementing knowledge which is shown in each of the three elements of intellectual capitals namely as structural, humanities and social capitals (Seemann, 1999).

In another definition of knowledge management, it is considered as a set of processes which result in empowering knowledge in order to play key roles in creating added value and production value (Sinotte, 2004).

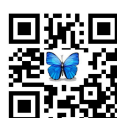
Organizations' knowledge management is a basic element in obtaining and preserving the competitive advantages in an organization which means different types of knowledge for supporting organizations' macro strategies, assessment of existing condition of knowledge management, transferring knowledge basics to new bases and correction and compensation of shortcomings in this context.

The APQC which is a training non-profit organization, has defined knowledge management as: "strategies and process of recognition, domination and obtaining power to penetrate knowledge for enhancement of competitive power".

Leonard Burton (1997) has defined knowledge as a sustainable core which includes four elements:

Integrated system, management system, staffs' knowledge and expertise and valorization.in a world by which everything is ambiguous to an organization, only knowledge is considered as a competitive advantage and there are organizations which are able to continuously create new knowledge and wide spread it in the entire organization and also present its real visualization in their new products and services. By knowledge, in addition to transferring information, we refer to innovation, creation and dynamicity. On this basis a knowledge organization implies new ideas and in this way, it is able to obtain a competitive advantage (Alvani, 1999). For effective implication of knowledge management, it is necessary to integrate the following three different aspects of organizational management: General business strategy, information system strategies and human resource management strategies (Kelly, 2004).

Wiig (1997) and Americas' productivity of quality center have identified six strategies for knowledge management in organizations which reflect organizations different essence and capabilities. These strategies include: 1) Knowledge strategy as a business strategy which is a general approach for knowledge management in a place in which knowledge is considered as a product. 2) Intellectual capital management strategy which emphasize on implementing and promoting capitals which are pre-existing in organizations. 3) Responsibility strategy for individual knowledge capital which supports employees and persuades them to develop their skills and knowledge and share them with each other. 4) Knowledge creation strategy which emphasizes on creation of new knowledge through research and development units. 5) knowledge transfer strategy which is considered as the best activity for optimization of quality and organizations' efficiency and 6) Customer oriented knowledge strategy which is implemented with the purpose of understanding customers for exact solving of their demands. In a different categorization, David S. who is a credible author in the context of knowledge management, believes that most of knowledge management programs are focused on seven strategic levels: 1) Customer knowledge which is the most critical knowledge in most organizations, 2) knowledge in processes which is defined as implementation of the best



**Ali Yaqoubi-Pour et al.**

information while doing tasks, 3) knowledge in products and services which is defined as smart solutions based on customer demands, 4) individuals' knowledge which is defined as training and controlling intellectual powers which is the most valuable capital, 5) Organizational memory which is defined as reference to previous lessons or any other place in organization, 6) knowledge in communications which is defined as deep individual knowledge which supports a successful collaboration and 7) knowledge properties which is defined as measurement and management of intellectual capitals.

Some scholars in the context of knowledge management have divided it into three main constituents of people, processes and technology (Figure 1.) people are the crucial parts of knowledge managements' success. Knowledge is only credible in humanities contexts and is flown among humans rather than machines. Knowledge processes include four functions of obtaining, refining, storing and sharing which are discussed in details in next paragraphs. Technology is consisted of hardware and software which each are consisted of information systems, collaboration instruments, Expert localization instruments, data analysis instruments, research instruments and exploration and Expert deployment instruments.

Regarding main processes of knowledge management, views are tightly close. From one point of view, main processes of knowledge management are categorized as recognition, obtaining, deployment, collaboration (distribution), maintenance and benefiting (Probst, 2000) while from another point of view, knowledge management is consisted of four main processes of creation, storing, recovery (transfer), sharing and knowledge implementation (Massa, 2009). Gorge W. Casey (2008) has divided knowledge management processes into five sections which are shown in figure 2.

Figure 2. Knowledge management processes (Casey, 2008).

As mentioned before, the processes we selected for our research include obtaining, refining, storing and sharing knowledge (Tsai, 2000). Each of which are defined in the following.

Obtaining knowledge: it is defined as the process of producing knowledge inside the company or obtaining knowledge from external sources. It should be noted that effective obtaining of knowledge from external sources depends on recognition of value of the new information and implementing them in order to reach organizational goals.

Refining: it is defined as the process of refining and integrating different knowledge. The goal of refining in accessing sets of knowledge which are entirely relevant to our purposes.

Storing: it is referred to processes which structuralize knowledge with the goal of formalization of knowledge and storing it in knowledge base.

Sharing Knowledge: it refers to processes of transferring, distribution and publication of knowledge in order to make it reachable by who need it.

Competitiveness

During the first years of industrial revolution, organizations increased their effectiveness, efficiency and competitive capabilities through automation of work force and methodicalization of production processes. But nowadays, organizations are faced with additional global competitions and customers far more complex. Organizations must continuously implement innovations in reducing expenses and deployment of their markets in order to preserve their competitiveness. As a result they have tried to increase efficiency of their processes and this is where knowledge





management comes up. In the situation of repetitive evolution of markets, discarding old technologies, multiplication of competitors and basic evolutions of products and services, knowledge is the only sustainable competitive advantage for an organization (Nonaka, 1998).

It should be pointed out that satisfied customers are companies' sources of benefits. Companies which fail to satisfy their customers will not have a long term existence in the market. Providing high quality products and excellent services leads to numerous advantages for the company (Roosta, 2008). Some researchers have analyzed four elements of good pricing, high quality, high speed and providing appropriate services for customers for assessing competitiveness level (Akhavan, 2008). As a result we have paid attention to more general elements in order to fully cover all aspects of competitiveness. These indexes include: organizations' prediction ability, sales capability, training capability, information processing ability, renovation capability, financial capability and quality of products and services.

Hypotheses and research model

In this research, our goal is to discuss the relationship between knowledge management processes and competitiveness. On this basis, there have been hypotheses formed which are as follows in addition to figure 3, which shows the relation between research variables.

Hypothesis - There is a meaningful relation between knowledge management processes and competitiveness

There is a meaningful relation between process of obtaining knowledge and competitiveness

There is a meaningful relation between process of refining knowledge and competitiveness

There is a meaningful relation between process of storing knowledge and competitiveness

There is a meaningful relation between process of sharing knowledge and competitiveness

Research methodology

In this research, factories listed in Kerman provinces' industrial parks (400 factories) are selected as the population. Information regarding these factories was obtained from data available in research and development office of this province. Since the number of factories was great we selected a sample for data collection.

As a result, first a number of questionnaires were distributed for assessing populations' standard deviation and next, 70 factories were selected according to the following formula:

$$n = \left[\frac{z_{\alpha/2} s}{e} \right]^2$$

For increasing the similarity between sample and population and increasing sampling accuracy for estimation of population parameters and incorporating sample features in population, group sampling method is implemented in which the population is divided into homogeneous groups and each group is consisted of elements with similar properties (Azar, 2009). The population is divided into two groups of small level with 300 hundred factories and large level including 100 factories based on indexes of organization size, number of staff, capital and sales level. As a result, for ensuring obtaining the defined sample size, 25 questionnaires were distributed randomly in large level and also 75 questionnaires were randomly distributed among small level factories. Anonymous questionnaires were sent during the final days of 2010 summer and 78 questionnaires were collected back three months later. Among these questionnaires, 73 were counted as valid and five as incomplete or ambiguous. It is noteworthy to mention that





Likert scale was implemented in design of these questionnaires and measurement range starts with very low and ends with very high. In order to confirm validity of the questionnaires, we exposed them to a number of professors and company managers and after validation; questionnaires were distributed among the sample. In this research, Chi-do test, variance analysis and correlation analysis are implemented for data analysis.

According to complete questionnaires, Cranach's' Alpha coefficient was measured for each respondent. If the least value is considered as 0.8 for basic research and 0.7 for exploratory research, the level of reliability is acceptable (Nunnaly, 1987). Results of each variable's reliability check are shown in table 1.

Data and research findings analysis

Results of chi-do test in table 2 indicate the correlation between competitiveness and knowledge management processes. As we can see, these processes are extremely related to competitiveness.

Correlation analysis is a statistic tool through which we can measure the degree of linear relation between one variable and another. In this research, Pearson correlation analysis is implemented for defining correlation between knowledge management and competitiveness. With respect to results of table 3, correlation between knowledge management processes and competitiveness are evident. These results confirm our research hypotheses.

Companies need competitive advantages for preserving their existence. They should focus on updating their product lines and synchronizing their steps with up to date knowledge. Obtaining the knowledge which is unavailable for competitors may lead to a competitive advantage and resulting significant amounts of profits for them. On this basis, obtaining knowledge can have a significant share in competitiveness.

In the next level, companies will try to screen their obtained knowledge in a way that the remaining of them is in full compliance with their goals. After passing this level, companies will run the screened knowledge in their working environments and try to stabilize it. They store the stabilized knowledge in their knowledge base and make it available to their staff in order to benefit from its advantages. Companies which have full solidarity in implementing these processes will have obtained a competitive advantage for themselves and remain competitive in the market. Our results also confirm these statements.

CONCLUSIONS AND RECOMMENDATIONS

In today's' knowledge oriented economy, knowledge is considered as most important and significant organizational property which leads to competitive advantage. Also obtaining a competitive advantage is the only index which shows the advantage of organizations compared to each other.

Knowledge management includes four main processes of obtaining knowledge, refining knowledge, storing knowledge and sharing knowledge. In this paper the relation between these processes and competitiveness in Kerman's industries is discussed. Results indicated a meaningful relation between knowledge management processes and competitiveness and also it was proved that three variables of organ size namely as sales, capital and number of staff have a meaningful effect of capability to manage knowledge. We assigned equal weighting numbers to each process of knowledge management and after assessing questionnaires, we concluded that each manager regards these elements with a different level of importance. Organizations which tend to increase their competitiveness should first optimize their knowledge management capability and as a result knowledge management advantage allows them to obtain their goals.





Ali Yaqoubi-Pour et al.

In this research we tried to discuss the relation between knowledge management processes and competitiveness, but more work is required for complete exploration of all aspects of this newfound phenomena. As a result, recommendations for future researches are included in the following lines:

- discussing the effect of organization size on knowledge management and its related processes
- discussing knowledge obtaining approaches and its effect on sustainable competitiveness
- discussing the effect of key staff on organizations' knowledge capital
- discussing the effect of implementing knowledge management in declining expenses and increasing firms' efficiency

REFERENCES

1. Azr, Adele, Mvumny, M., Statistics and Its Application in Management (statistical analysis), eleventh edition, the study and edited books Humanities University (left), Summer 1387.
2. Khvan, Haidari, Sfanaz, customer knowledge management approach to gain competitive advantage, manage tomorrow, No. 18, Fall and Zmstn 1386.
3. Alwan, Mehdi, Organization, Journal of, controller, Second Year, No. 8-7, 1377.
4. Daft, Richard L. ; organization theory and design, translation Parsayyan Ali and Mohammad Arabi, Ninth Edition, Office of Cultural Research, 1387.
5. Robbins, Stephen, organization theory (structure and organizational design), translated by Mehdi Hassan Alvani and wise person, the twenty-sixth edition, published by Saffar - illuminated, 1388.
6. Rvsta, A., Venus, and the referee Ibrahim, Abdul, Marketing Management, Tenth Edition, the study and edited books Humanities University (left), 1386.
7. Alavi, M. Leidner, D. (2005) Knowledge Management and Knowledge Management Systems, MIS Quarterly, 25 (1), pp 107-136.
8. ndersen, A. (1996) Improving Knowledge Sharing in International Businesses, Andersen worldwide, SC, April.
9. Badaraco, J. L. (1991) Knowledge Link: How Firms Compete Through Strategic Alliances, Boston, MA: Harvard Business School Press.
10. Barton L. D. (1995) Wellsprings of knowledge: Building and sustaining the sources of Innovation, Harvard Business school press, Boston, Massachusetts, pp.41-56.
11. Casey, G. W. JR. (2008) Knowledge Management Section, Available at Army Knowledge Online.
12. Kelly, C. (2004) Knowledge Management: Just doing it, management information, July/August, 11(6):43-7.
13. Lin, C. I. (1999) A study of building Knowledge Management data base to increase enterprise competitive advantages, Master Thesis is Da-yeh University, Chang-Hua, Taiwan, Roc.
14. Massa, S. Testa, S. (2009) A Knowledge Management Approach to Organizational Competitive Advantage: Evidence from the Food, European Management Journal 27, 129-141.
15. Nonaka. I. Konno, N. (1998) The concept of (Ba): Building a foundation for knowledge creation, Journal of California Management Review, Vol. 40. 13, 30.
16. Nonaka, I. (1991) The Knowledge-creating Company, Harvard Business Review, 96-104
17. Nunnally, J. C. (1978) Psychometric theory (2nd Ed), McGraw-Hill, New York.
18. Probst, G. Roub, S. Romhardt, K. (2000) Managing Knowledge Building Blocks for Success, John Wiley & Sons Ltd.
19. Quinn, J. B. (1992) Intelligent Enterprise: A Knowledge and Source Based Paradigm for Industry, New York Free Press.
20. Quinn. J. B. (1993) Managing the Intelligence Enterprise: Knowledge & Service-based Strategies, Planning Review, 21 (5): 13-16.
21. Santosus, N. Surmac, P. (2001) The ABCs of Knowledge Management, Available at: <http://www.cio.com/research/knowledge/edit/kmabc.html>





Ali Yaqoubi-Pour et al.

22. Seemann, P. Delong, D. Stacy, S. Guthrie, E. (1999) Building intangible assets: a strategic framework for investing in intellectual capital, The Practical Application Company Ltd. 229.
23. Sinotte, M. (2004) Exploration of the field of Knowledge Management for the library and information professional, Libri, 54:190-8.
24. Tsai, T. F. (2000) The framework of Knowledge Management in consulting company, Master Thesis is Da-yeh University, Chang Hua, Taiwan, Roc.
25. Wiig K. M. (1997) Knowledge Management: Where did it come from and where will it go?, Journal of Expert systems with Application, 13(1): 1-14.

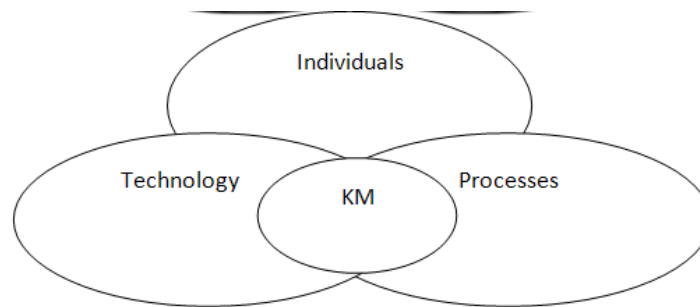


Figure 1. Knowledge management constituents (Casey, 2008)

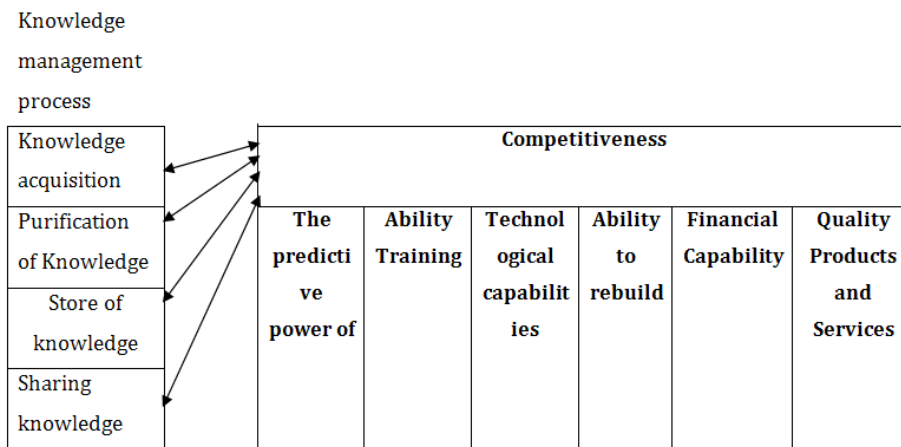
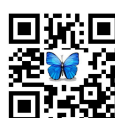


Figure 2. Research Model

Table 1. Questionnaire reliability

Competitiveness	knowledge management				criterion
	Sharing knowledge	Storing knowledge	Refining knowledge	Obtaining knowledge	
0.8823	0.8502	0.7006	0.7042	0.8473	Cranbach's alpha





Ali Yaqoubi-Pour et al.

Table 2. Chi-do test for knowledge management processes and competitiveness

competitiveness		Knowledge management processes
p-Value	χ^2	
***0.000	673.026	Obtaining knowledge
***0.000	348.712	Refining knowledge
***0.004	395.582	Storing knowledge
***0.000	821.134	Sharing knowledge

Table 3. Correlation coefficients

Competitiveness	Sharing	Storing	refining	Obtaining		
0.465 0.000 71	0.382 0.000 71	0.831 0.000 73	0.803 0.000 73	1.000 - 73	Correlation sig number	Obtaining
0.442 0.000 71	0.403 0.000 71	0.802 0.000 73	1.000 - 73	0.803 0.000 73	Correlation sig number	Refining
0.432 0.000 71	0.372 0.000 71	1.000 - 73	0.802 0.000 73	0.831 0.000 73	Correlation sig number	Storing
0.942 0.000 71	1.000 - 71	0.372 0.000 71	0.403 0.000 71	0.382 0.000 71	Correlation sig number	Sharing
1.000 - 71	0.942 0.000 71	0.432 0.000 71	0.442 0.000 71	0.465 0.000 71	Correlation sig number	Competitiveness





RESEARCH ARTICLE

Analysis of the relationships between Entrepreneurship skills and officials' performance in Asia Insurance in Khorasan Razavi

Salimeh Sohrabi^{1*} and Ahmad Nategh Golestan²

¹Department of Business Management, Neyshabur Branch, Islamic Azad University, Neyshabur, Iran.

²Department of Business Management, Neyshabur Branch, Islamic Azad University, Neyshabur, Iran.

Received: 18 Jan 2015

Revised: 21 Feb 2015

Accepted: 19 Mar 2015

*Address for correspondence

Salimeh Sohrabi

Department of Business Management,
Neyshabur Branch, Islamic Azad University,
Neyshabur, Iran.



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License** (CC BY-NC-ND 3.0) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

Nowadays, in developing world there are some organization making progress and going ahead; these organization can equip their human sources with knowledge and Entrepreneurship skills so that they can guide society and other organization sources to growth, development and management by means of these precious capacities. The main aim of this study is to analyze the relationships between the Entrepreneurship skills and officials' performance of Asia Insurance in Khorasan Razavi. Regarding the objective, this study is experimental and in respect to approach, this is descriptive and correlational. The statistical population is all the officials of agencies and branches of Asia Insurance Company in Khorasan Razavi adding up to 250 people. The method of cluster sampling is multi-phase and according to Cochran formula, the statistical sampling is 152 people. According to Anderson and et al model (2006) and to standard questionnaire, the performance measurement of Heresi and Goldsmith (1980) has been used. In deductive statistics, Kolmogorov–Smirnov test and structural equation test has been used to analyze the hypothesis. In this research, all the hypotheses have been accepted and there is statistical significance between the Entrepreneurship skills and officials' performance of Asia Insurance in Khorasan Razavi.

Key words: Entrepreneurship skills, officials' performance



**Salimeh Sohrabi and Ahmad Nategh Golestan****INTRODUCTION****Research theoretical framework**

In today world of constant changes, the victory is in the hands of those societies and organizations which have been able to create a meaningful balance between the rare sources and the management and entrepreneurial capacities of their human resources, since the progressive and accelerating move in the path of development is only limited to those who are able to mobilize their human resources to the productive entrepreneurial knowledge and skills and those who can use this valuable ability in order to manage other resources of the society and the organization towards achievement of value and improvement (Aghazadeh and Reza zadeh, 1383: p.14).

Entrepreneurship and Entrepreneur

Schumpeter (1942) defines the Entrepreneur as a person able to create and change, someone who can push the markets towards imbalance. And Knight (1921) describes Entrepreneurs as ambiguous managers. They are such people whose anticipation towards the market changes with insufficient information is stable. They also need to do cardinal management functions such as leadership and control. Howell (1972) talks about entrepreneur as the founders of new companies which have an important role in the business ownership and like to incline the businesses over the self-employment borders (Forster, 2006: p.30).

Entrepreneurial skills: Anderson et al (2006) categorize the Entrepreneurial skills in three groups whose triple framework is used in this research:

Personal skills: It includes personal skills such as innovation, risk-taking, ability to face the unknown, challenge acceptance, responsibility taking, and seeking for the changing opportunities.

Interpersonal skills: Interpersonal skills including effective social intercourse, productive communications, discussion, influence, and effective leadership.

Processing skills: Processing skills include the ability to plan and organize, the ability to analyze and combine the environment and evaluate it, and the ability to plan performance.

Effective elements on the Entrepreneurship**Work experience:**

The importance of work experience is based on this view point that it can help the potential entrepreneurs becoming familiar with their favorite marketing situation as well as expanding the communicating web of their future business. On one side, Work experience can provide the possible knowledge and communication and on the other side it can be regarded as a saving provider for the business start.

Role models:

Role models are generally related to the family members (such as father, mother, sister, or brother) who have previously started or are going to begin the business. Generally the most important effect of role models is the acquisitive procedure that their positive and negative experiences provide. Researches have shown that the existence of role models or the special knowledge of family members can create the interest. Role models can be effective by



**Salimeh Sohrabi and Ahmad Nategh Golestan**

presenting the prominent entrepreneurs via media advertisements or by rewarding them and making media shows about them (Lundstrom & Stevenson, 2003: p.200-203).

Dissatisfaction:

Various researches about the motivation aspects of the individual to start a business have shown that some motivation aspects are due to the lack of facilities and because of that dissatisfaction pops up (unemployment or the risk of being unemployed). Dissatisfaction can also has many other causes like: job dissatisfaction, need to more independence, wish to have more control on decisions, better income perspective. The main presupposition about the entrepreneurs is that the more dissatisfaction, the more possibility to start a business. In an entrepreneurship study done in 23 countries which are the members of the organization for economic cooperation and development countries, Wilman et al (1999) observed that the level of dissatisfaction has an positive effect on the rise of businesses.

Education:

The studies show the entrepreneurs will to have an educational level higher than the half of adult population. Although the main point of this statement is the level of education, not the content of it (Lundstrom & Stevenson, 2003: p. 204-205). The studies in Canada show that the accelerating increase of entrepreneur women in industry have an direct relation to higher levels of education and this is rooted from the basics of economic knowledge; it means that young women with academic degrees, have jointed the market to the scientific economy. Studies in the U.S. also show that more than 70 percent of entrepreneur women have academic education (Golrod, 1386:208).

Competence:

Competence variant is compounded from different factors such as personal nets, job teaching, education, implied knowledge, and acquisition experience. Ample researches are done on the companies capacities in which the company's abilities are being related to the attraction of the competent and capable workers. Other researches show that different individual capacities in different times and situations demonstrate the fact that individual's capacities cannot easily being summarized. Although all these may have no relation to the level of entrepreneurship, they can affect the level of dissatisfaction or job experience (Lundstrom & Stevenson, 2003: p.206).

Significance of the Performance:

Performance is generally considered in three levels of individual, group, and organization, and each of these levels is affected by different factors which are presupposed to better performance if they are controlled. The factors in the realm of individual are: ability, character, acquisition, understanding, motivation, stress, or psychological pressure. Influential factors on the group performance can be seen on in the concepts of communication, politic, organizational procedure, and organizational culture. In this viewpoint, the organizational performance is regarded as a submission of the above mentioned factors. The researchers believe that the performance is the main subject in all the organizational analysis and it is hard to imagine an organization which is not included in the performance estimation (Elahi, 1378: p.53).

In fact, performance assessment in relation to the appointed goals and rewarding according to the results is one of the main elements in modern governmental management guiding and it emphasizes on the performing supporters, financial control, and measuring the people's and organization's doings along with the appointed goals (Shaw, 1999). One of the main goals of the worker's performance assessment is the exact specification of people's role in the organization in order to regard the salary and reward according to them. If the wrong elements are used in the assessment of performance, the salary will not be in proportion to their work.





Salimeh Sohrabi and Ahmad Nategh Golestan

Hersey and Goldsmith Model

Achieve is a model which helps the managers to determine the performing problems. This model planned by Goldsmith and Hersey regarding seven elements effective on the performing human force in order to help the managers solving these problems (Rezaeiyan, 1392).

Hersey and Goldsmith have selected seven elements among the others related to the effective management performance: motivation, organizational support, understanding, ability, credit, environmental compatibility, assessment and feedback. In this model, workers' performance is related to different variants such as: P=f (A.C.H.I.E.V.E)

(p) Performance

(Ability=A) ability: the power to do a job successfully.

(Clarity =C) clarity: clarification in the acceptance of the way of work, place and how to do that.

(Help= H) Organizational Help: the support which the workers need it due to the better result.

(Evaluation = E) evaluation: the assessment of the job in relation to way of doing the work.

(Environment: E) environment: a set of external organizational elements.

In fact, the Achieve model introduce the above elements as the main and the effective (Martin, 1998).

REVIEW OF LITERATURE

An article by Falah Lajimi (1386) entitled "Investigating the effect of entrepreneurship on the organizational performance and the rivalry advantage" shows that the elements of entrepreneurship except the ambition have effects on the organizational performance and the rivalry advantage. Khalifi (1387) had a study named "investigating the relation between the entrepreneur managers and the effectiveness of small and medium businesses in the city of Sanandaj". The results show that the communicational skills are in the first priority, procedural skills are in the second position and personal skills are in the third position. Imanipour (1387) did a study entitled "investigating the relation between the tendency towards the official entrepreneur and the performance. It evaluates the adhesion between the tendency towards the official entrepreneur of the deputation sale of Iran insurance company in Tehran and their performance. It clears that inclination towards official entrepreneurship has a positive and meaningful relation to the performance. Finally, in regard to the results of the study, there are some suggestions for the development of organization entrepreneurship in the insurance industry and all the related industries. Ebrahim Pour (1390) has done a research named "investigating the relation between the organizational entrepreneurship and the business performance of Tabriz Petrochemical Company. The results indicates a positive relation between the organizational entrepreneurship elements including innovation, risk- taking, pioneer, and the aggressive rivalry with the business performance. Nargesi (1391) has done a study entitled "investigating the relation between the managers' entrepreneur skills and the organizational effectiveness of the medium and small industries of Kermanshah. The result is that there is a positive and meaningful relation between the personal skills, intrapersonal skills and the management procedural skills. Sehat (1393) did a study named "specifying the relation between the organizational entrepreneurship and the performance with the knowledge based resources as the mediator (subject of the study: accepted technology- based companies in Tehran Securities and Exchange Commission). The results show that the knowledge based resources is a mediator in three facets of human resources, organizational resources, and social resources. It means that paying attention to organizational entrepreneurship can result in the development of knowledge based resources and this resources development itself results in the better performance of the company.

Antoncic and Hisrich (2003) in their study "probabilities of organizational entrepreneurship and the creation of organizational credit" between the 477 Slovene companies, have reached the result that the organizational entrepreneurship has different effects on the organizational credit, growth, and profitability. Brizek (2003) has done a



**Salimeh Sohrabi and Ahmad Nategh Golestan**

study entitled "investigating the relation between the organizational entrepreneurship and the management performance". He has come to the result that there is a meaningful relation between the organizational entrepreneurship and the management performance and the more management uses its staff's cooperation, the more it develops towards the entrepreneurship cited in Brianing, 2004). Heinonen and Poikkijoki (2006) have done a research on the entrepreneur's characteristics and the growth of these people in universities. They obtained the result that the people who are capable of the primitive entrepreneurship characteristics should be thought from the first years of school in order to gain a high level of entrepreneurship and the existed market chances. Aktan & Bulut (2008) have done a research entitled "the effects of organizational entrepreneurship on the financial performance of new-born markets". Among 312 active companies in Turkey, they came to the result that the organizational entrepreneurship with its four facets of innovation, risk-taking- pioneer and aggressive rivalry is in the improvement financial side of the companies in the developing countries. Scheepers et al (2008) have done a research named "the growth of organizational entrepreneurship capacities". Among the 315 companies of South Africa, the result shows that a strategic leader should support the organizational entrepreneurship (innovation, risk-taking, pioneer, and independence), and he should also allocate rewards for the entrepreneurship attitude in order to strengthen the organizational entrepreneurship capacity.

RESEARCH METHODOLOGY

This is an applied research. The goal of applied researches is the development of applied knowledge in a specific context. The methodology used in this research is descriptive of the survey research since the goal is to describe the situations and the data are gathered documentarily and non-documentarily. On the other side, since the main goal of is investigating the relation between the research variants, for the data analysis, the descriptive method is used.

According to the Asia insurance website data, there are 6 main centers (in the cities: Mashhad, Neyshabour, Ghuchan, Sabzevar, Torbat Heidariyeh) and 236 active deputations (in 23cities), are working; therefore, the statistical work and society is more than 250 centers and deputations of Khorasan Razavi Asia insurance.

In this research, according to the characteristics of the statistical work and society, the multi-stage cluster sampling is regarded and each center manager and deputation of Khorasan Razavi Asia insurance is regarded as a sample unit. In the way that at first, the cities with a deputation are regarded as a cluster. And then five cities with the most number of deputations are chosen, and the questioners are distributed among them randomly. These five cities are accordingly, Mashad, Neyshabour, Sabzevar, Torbat, and Ghuchan, each of them with a main center and 91, 40, 30, 21, 15 deputations.

Data gathering is very important in the survey research method and the assessment of the hypothesis is based on the accuracy of data gathering. In regard to the goals of the research, the best way of data analysis is the use of questionnaire. After the vast studies and the interview with some related specialists and the opinion of my advisor, the use of the researcher's questionnaire (according to the elements of Anderson et al, 2006) and the standard questionnaire of investigating the job performance (according to the Achieve Model) by Heresey and Goldsmith (1980) is determined.

Since the Cronbach's alpha is usually a totally suitable parameter to evaluate the reliance of the measurement and the cooperation of the internal elements, therefore, the reliance capability of this questionnaire is evaluated by the help of Cronbach's alpha. Therefore, in an introductory sampling of 30 samples, the stability has been evaluated and according to the chart below, it has the needed credit.

Two methods of descriptive and inferential statistics is used for the analysis in this research. In the descriptive section, the Frequency distribution charts and central measures and the standard deviation are calculated. The





Salimeh Sohrabi and Ahmad Nategh Golestan

related charts are also drawn. In the inferential section, according to the hypotheses, the Kolmogorov–Smirnov test to ascertain the normal mode of the variants and the SEM test in order to answer the hypotheses are used by the help of Spss and Lisrel software.

TEST OF RESEARCH HYPOTHESIS

Test of main hypothesis

To determine the relationship relationships between the Entrepreneurship skills and officials' performance of Asia Insurance in, the researcher uses the structural equation analysis. As it can be seen in the table, the value of statistic t is 5/29 and is more than 1/96; therefore, there is statistical significance between the Entrepreneurship skills and officials' performance of Asia Insurance and it can be accepted.

Test of first subsidiary hypothesis

To determine the relationships between the personal skills and officials' performance of Asia Insurance in, the researcher uses the structural equation analysis. As it can be seen in the table, the value of statistic t is 5/29 and is more than 1/96; therefore, there is statistical significance between the personal skills and officials' performance of Asia Insurance and it can be accepted.

Test of second subsidiary Hypothesis

To determine the relationship relationships between the interpersonal skills and officials' performance of Asia Insurance, the researcher uses the structural equation analysis. As it can be seen in the table 3, the value of statistic t is 4/76 and is more than 1/96; therefore, there is statistical significance between the interpersonal skills and officials' performance of Asia Insurance and it can be accepted.

Test of third subsidiary Hypothesis

To determine the relationship relationships between the processing skills and officials' performance of Asia Insurance, the researcher uses the structural equation analysis. As it can be seen in the table 4, the value of statistic t is 4/84 and is more than 1/96; therefore, there is statistical significance between the processing skills and officials' performance of Asia Insurance and it can be accepted.

General Analysis of test of research hypothesis

All hypotheses in this research have been accepted and there is direct and statistical significance between activities and official's entrepreneurship skill of Asia Insurance. In the following table, the results for each hypothesis have been gathered.

Discussion and the result of statistical analysis and test of hypotheses

In this section the results of test of hypotheses will be described in short:

The result of test of main hypothesis (relationship between entrepreneurship skills and performance)

To determine the relationship between the entrepreneurship skills and officials' performance in Asian Insurance, the researcher uses the structural equation analysis. According to the results taken from the outlet of Lisrel software, numbers are analyzed for the suitability standards and the permissible amount in these standards for the main



**Salimeh Sohrabi and Ahmad Nategh Golestan**

hypothesis. It was determined that the achieved number was in the permissible level for the suitability standard and the statistic t is 5/29 and it is more than 1/96, therefore statistical significance between the entrepreneurship skills and officials' performance in Asian Insurance can be accepted. These results has been matched with the findings of the researched carried out by Falah Lajimi (1386), Kholeghi (1391), Imanipour (1387), abodimalaki (1387), Ebrahimpour (1390), Nargesi (1391) Kanani (1391), Darban Astane(1391), Dashteki (1391), Sehat (1393), Harnspi (2002), Brizik (2003) and Aktan and Boulton (2008).

The test of the first subsidiary hypothesis (the relationship between personal skills and performance)

To determine the relationship between the personal skills and officials' performance in Asian Insurance, the researcher uses the structural equation analysis. According to the results taken from the outlet of Lisrel software, numbers are analyzed for the suitability standards and for the permissible amount in these standards for the main hypothesis. It was determined that the achieved number was in the permissible level for the suitability standard and the statistic t is 5/29 and it is more than 1/96, therefore statistical significance between the personal skills and officials' performance in Asian Insurance can be accepted. Officials in Asia Insurance can improve the performance and the efficacy conducive to general improvement and development in Asian Insurance industry by having a series personal entrepreneurship skills such as innovation, risk taking ability, ability of face the unknown, taking up the challenge, keenness and eagerness to take the responsibility and search chances for change. These results has been matched with the findings of the researched carried out by Kholeghi (1391), Imanipour (1387), Nargesi (1391) Kanani (1391), Sehat (1393), Brizik (2003) and Aktan and Boulton (2008).

The test of the second subsidiary hypothesis (the relationship between interpersonal skills and performance)

To determine the relationship between the interpersonal skills and officials' performance in Asian Insurance, the researcher uses the structural equation analysis. According to the results taken from the outlet of Lisrel software, numbers are analyzed for the suitability standards and for the permissible amount in these standards for the main hypothesis. It was determined that the achieved number was in the permissible level for the suitability standard and the statistic t is 4/76 and it is more than 1/96, therefore statistical significance between the interpersonal skills and officials' performance in Asian Insurance can be accepted. Officials in Asia Insurance can improve the performance and the efficacy conducive to general improvement and development in Asian Insurance industry by having a series interpersonal entrepreneurship skills such as effective interaction with others, effective communication with others (coworkers, clients,...), the ability of negotiating in solving problems and charisma and impressing others. These results has been matched with the findings of the researched carried out by Kholeghi (1391), Imanipour (1387), Nargesi (1391) Kanani (1391), Sehat (1393), Brizik (2003) and Aktan and Boulton (2008).

The test of the third subsidiary hypothesis (the relationship between processing skills and performance)

To determine the relationship between the processing skills and officials' performance in Asian Insurance, the researcher uses the structural equation analysis. According to the results taken from the outlet of Lisrel software, numbers are analyzed for the suitability standards and for the permissible amount in these standards for the main hypothesis. It was determined that the achieved number was at the permissible level for the suitability standard and the statistic t is 4/84 and it is more than 1/96, therefore statistical significance between the processing skills and officials' performance in Asian Insurance can be accepted. Officials in Asia Insurance can improve the performance and the efficacy conducive to general improvement and development in Asian Insurance industry by having a series processing entrepreneurship skills such as programming and organizing, ability to analyze and the combination of environment and evaluation and also the ability to execute the suitable and effective programs.





Salimeh Sohrabi and Ahmad Nategh Golestan

ANALYSIS AND CONCLUSION

To improve the entrepreneurship skills and to maximize the officials' performance in Asia Insurance, there are some suggestions as follows:

level of creativity skills of individuals can be improved by holding some educational course of skills and techniques by experts; creating motivation and ambition to make progress using all incentives such as increase in the percent of profit influenced by selling various insurance services, variety of products that can be offered, granting various privileges and By managers and senior decision makers of Asia Insurance to those in charge of branches and agencies.

The senior managers and decision maker of Asia Insurance must create suitable atmosphere and creativity alongside taking risks and probable challenges among official of agencies and its branches and back it thoroughly. Clarity of instruction and procedures and also kind of leadership from senior managers of Asia Insurance will create necessary atmosphere for more effective interaction and communication with officials of agencies and branches and improve job and organizational performance.

Selection of agency and branch officials in Asia insurance among graduates of relevant fields, in particular, the insurance management or other subfields of management is very effective. Holding short-term professional courses in insurance management for the officials can increase their entrepreneurship processing skills and in conclusion, it can improve the job and organizational performance.

REFERENCES

1. Ahga Zade, Hashem and Hossein Reza Zade (1383), Organizational Entrepreneurs, Tadbir Monthly journal, issue 102.
2. Elahi, Shaban, (1378), the Triangle of organizational Performance, Collection of essays of Performance measurement in executive powers, committee of performance measurement
3. Rezayan, Ali (1392), the basics of Organizational Behavior management, 13th ed, Samt Publication
4. Golrod, Pravane (1386), effective factors in Women Entrepreneurship, political and economic information, 240-239, p 204-213.
5. Brianing dictionary.(2005). Writhing. <http://www.braingdictionary.com/>
6. Brianing dicNewbert,S. L.(2004). Creating value through entrepreneurship:
7. A reconceptualization, theoretical extension, and conceptual level empirical Investigation of the resource based view of the firm. Ph. Dissertation Abstract. State University of New Jersey- Newark
8. Forter L.M. (2006). Entrepreneurs and Their Social Network: Motivations, Expectation and Outcomes, the George Washington University, Ph.D. Dissertation.
9. Lundstrom, A. & Stevenson A. L. (2003). Entrepreneurship Policy, Theory and Practice, Kluwer Academic Publisher, NewYork.
10. Martin.j. (1998). organizational behavior. London. International Thompson. Business.





Salimeh Sohrabi and Ahmad Nategh Golestan

Chart 1- the coefficient of Cronbach's alpha for the research variants

rank	The Research variants	the coefficient of Cronbach's alpha
1	The entrepreneur skills	0/8727
1-1	The personal skills	0/7805
1-2	The intrapersonal skills	0/7103
1-3	Procedural skills	0/7694
2	The manager's performance	0/9366

Table 1. Analysis of path with variables t, the relationships between the Entrepreneurship skills and officials' performance of Asia Insurance

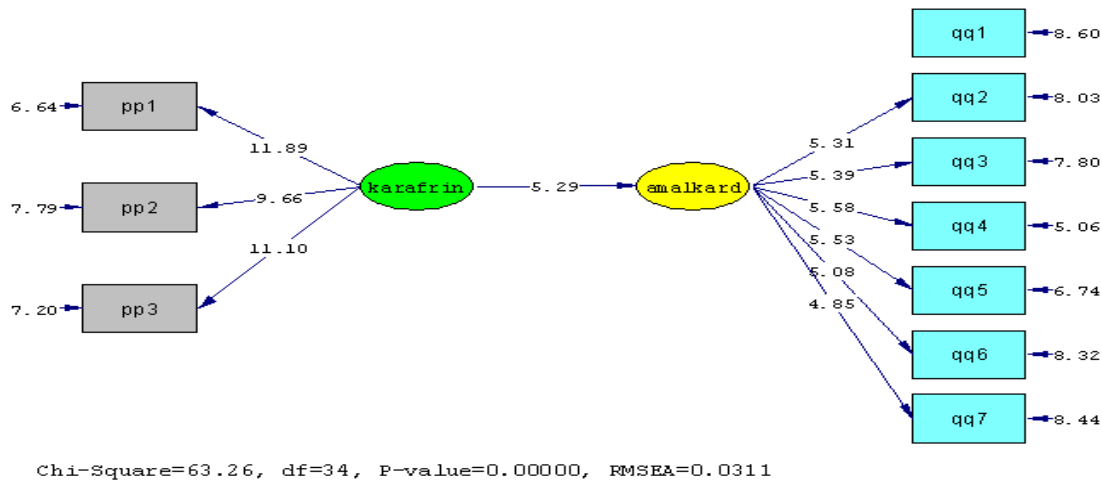
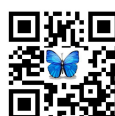
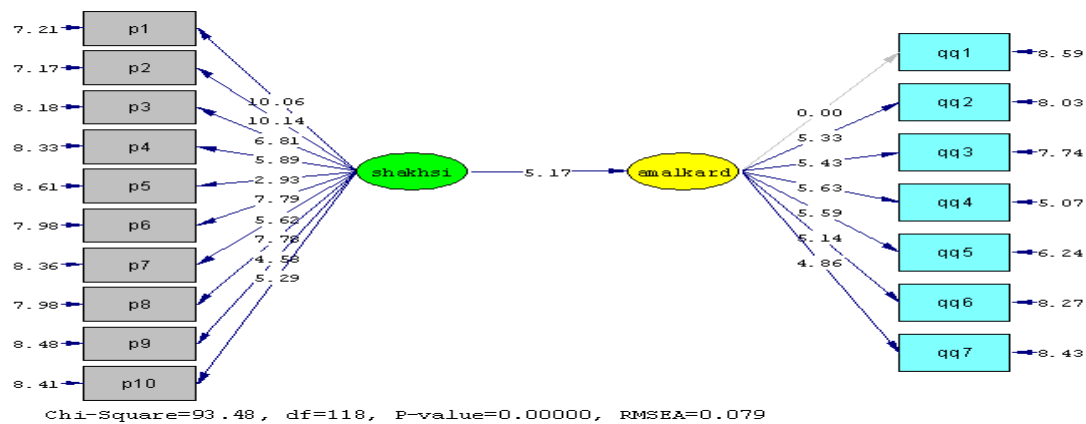


Table 2. Analysis of path with variables t, the relationships between the personal skills and officials' performance of Asia Insurance





Salimeh Sohrabi and Ahmad Nategh Golestan

Table 3. Analysis of path with variables t, the relationships between the interpersonal skills and officials' performance of Asia Insurance

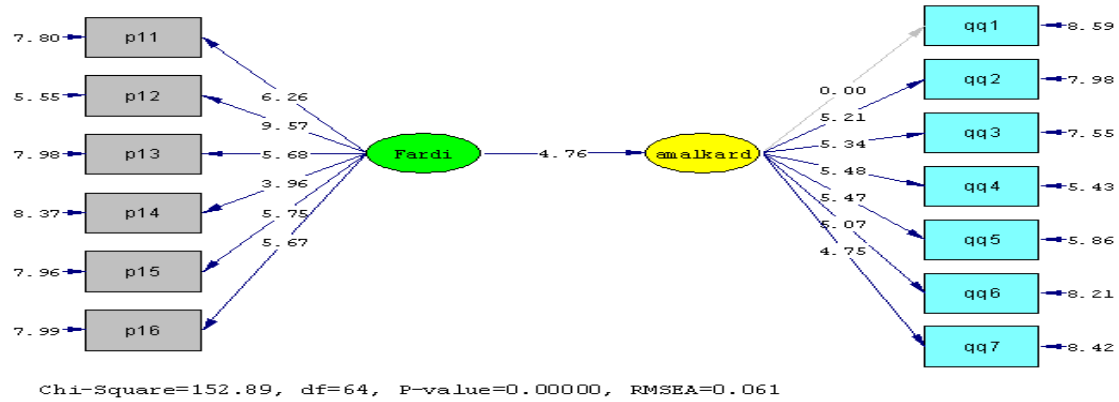


Table 4. Analysis of path with variables t, the relationships between the processing skills and officials' performance of Asia Insurance

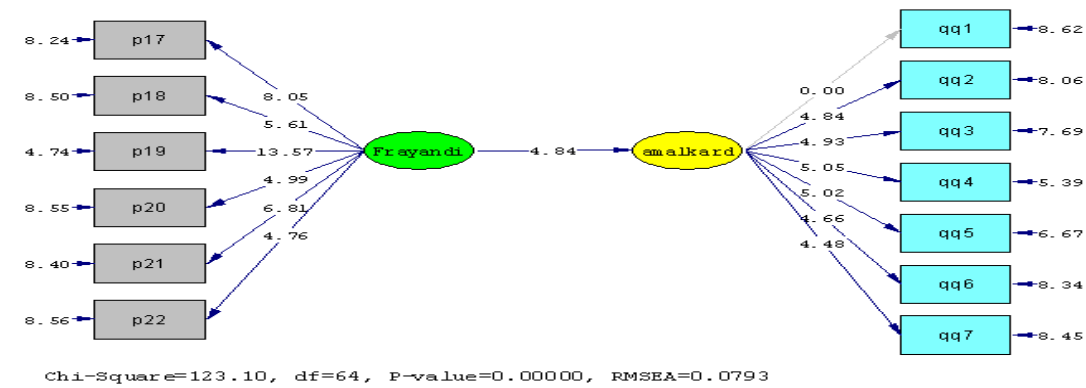
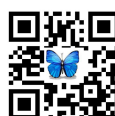


Table 5. General Analysis of test of research hypothesis

result	analysis	Permissible amount	statistic t	hypothesis
Acceptance of hypothesis	1/96 5/29	Less than -1.96 or more than 1/96	5/29	Main hypothesis
Acceptance of hypothesis	1/96 5/17	Less than -1.96 or more than 1/96	5/17	First subsidiary hypothesis
Acceptance of hypothesis	1/96 4/76	Less than -1.96 or more than 1/96	4/76	Second subsidiary hypothesis
Acceptance of hypothesis	1/96 4/84	Less than -1.96 or more than 1/961	4/84	Third subsidiary hypothesis





Relationship between Intellectual Capital, Dividend Policy and Financial Performance for Listed Companies in Tehran Stock Exchange

Atefeh Khoshahang¹ and Abdorreza Asadi^{2,*}

¹MSc of Business Administration Department of Management, Islamic Azad University Neyshabur Branch, Neyshabur, Iran

²Assistant Professor of finance Department of Management, Islamic Azad University Neyshabur Branch, Neyshabur, Iran.

Received: 18 Jan 2015

Revised: 21 Feb 2015

Accepted: 19 Mar 2015

*Address for correspondence

Abdorreza Asadi(PhD)

Assistant Professor of finance Department of Management,
Islamic Azad University Neyshabur Branch,
Neyshabur, Iran.

Mobile: +989156993166

Email: Abdorrezaasadi@yahoo.com.



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License** (CC BY-NC-ND 3.0) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

The present study investigates predictability power of intellectual capital and dividend policy on financial performance of 116 listed companies in Tehran Stock Exchange (TSE) over period of 1385 to 1391. The present study can be categorized in applied researches based on research purpose, whereas based on research methodology; the study is categorized among correlation researches. The article's hypotheses examine the effect of intellectual capital on dividend policy and their relationship with firm market value added and investment return. Findings indicate that the effect of intellectual capital on dividend policy is insignificant, while a significant relation between intellectual capital and financial performance as well as the effect of dividend policy on financial performance is significantly accepted.

Key words: Intellectual capital, Dividend policy, Market value added, Investment return.

INTRODUCTION

The advent of technological information (IT), information and networking society as well as quick growth and development of predominant technology (especially communications) back to 1990, economics global growth pattern



**Atefeh Khoshahang and Abdorreza Asadi**

has changed. As a result knowledge has become as the best alternative capital of physical and financial capital in today's global economics. In knowledge based economy, organizations live and die based on knowledge, and the most successful companies are those that utilize these assets in a better and quick way. Benteis et al (1999) studies showed that unlike reduction of traditional resources return (such as money, land, machinery, etc.) knowledge is a real source to increase business function. Accordingly, now and future success in companies' competition process will partly be based on appropriation of physical and financial resources and much partly on strategic management of knowledge. So an organization leadership duty is to create an environment for knowledge management. More clearly, the challenge managers face is to prepare an appropriate environment for growth and training human mind in knowledge oriented organization (Bentties,1996), therefore knowledge management capability is manager's basic skill in these organizations (Coubin, 1992). Nevertheless, unfortunately as nature of knowledge is invisible and intangible, and that can't be measured by any of traditional accounting criteria, there is a risk of knowledge neglecting and other intangible assets of organization's managers. In fact a knowledge oriented business environment needs a new model and name which involves organization's intangible factors. In this situation the new topic, intellectual capital, has attract increasing attention. Intellectual capital, as producing knowledge and information and consequently producing wealth in knowledge oriented economics, can have an important role in creating added value and gross internal production. For this reason, in economical organization level, financial performance of companies can be influenced by intellectual and human assets.

Problem statement

Today, in spite of accepting undeniable role of intellectual capital and intangible assets in firms' performance, most accounting systems are seems unable to measure companies' intellectual capital and reflecting it in financial notes. At the same time, their importance in increasing stock holders' wealth, achieving sustainable profitability, and increasing companies' share of global market has been always taken into account. Value of intellectual capital is usually expressed according to difference between book value and market value. Divergence between these two values clearly indicates that in preparing financial notes and also balance sheet of some intangible factors has been ignored. Regarding this that exactly exploring and recognizing effective factors on dividend policy is still one of debatable issues in financial administration of corporations. Managers must recognize different variables not reflected in balance sheet but having some impacts on making decision about how to pay dividable interest. In case that effective factors on dividable interest ratio and their impact level is realized, managers will achieve an attitude about their company's situation, and then will make better decision. Inappropriately making decision leads to lose company's stockholders and to decrease their future financial performance.

Knowledge based business environment requires an attitude which involves invisible new organizational assets like knowledge and human resources, creativity, relationship with customer, organizational culture, systems, organizational structure, etc. In this respect intellectual capital theory has attracted researches and managers' attention.

The term of intellectual capital in 1969, by Galbris, was introduced as a value-making procedure and a group of assets. Stewart (1997) defines intellectual capital as: "intellectual elements – knowledge, information, intellectual assets, and experience, which using them can cause wealth to be produced". A comprehensive definition has been offered by Brouking (1996): "A combination of intangible assets which enable the organization to do its task". Intellectual capital theory has three elements: human capital, structure capital, and customer capital. Human capital is considered as foundation of intellectual capital basic element in proceeding its duties (Chen et al, 2004:201). Structure capital is related to mechanism and structure of a trading company and can help stuff having efficient intellectual performance, so organization can make its performance better. Customer capital is seen as a bridge and organizer of intellectual capital operations, and also as a determiner factor in converting intellectual capital into market value (Chen et.al, 2004:203).



**Atefeh Khoshahang and Abdorreza Asadi****RESEARCH BACKGROUND**

Medshins et.al (2010) in a study examined market value and financial performance of companies using data from 96 Greek companies. The result indicated that only between human capital and a criteria of financial performance such as return of equity (ROE), there is a significant relation, and there is no relation among other elements of intellectual capital and itself with other financial performance criteria (return on assets and income growth rate). Other results indicate that no relation between intellectual capital and its elements with market value cannot be seen.

Daniel Zigal and Anisce Malol (2010) dealt with measuring intellectual capital with added value and examination of its results' impact on financial economic performance, and added value of 300 British corporations. To measure intellectual capital, they have used model of intellectual added value coefficient. Results from tests shows that efficiency of intellectual capital has a positive significant relation with economic and financial performance, but this relation regarding market value performance only in technological industry is important. Also used capital (physical and financial) has a negative relation with economic performance but a positive significant relation with market value function and financial function.

Stephen Beans (2001) in a study dealt with theories and determiner factors of dividend policy and examined set of offered models in previous studies. The results clarify that in Switzerland companies dividend policy of current year is related to previous years. That is compatible with dividend smoothing theories. In these companies there is a opposite relation between company size and investment opportunities and dividend payments.

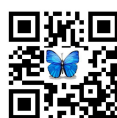
Frank Forter and Wood (2002) in investigation on dividend policy theory found that the same factors affecting equities price also affect dividend policy. To explain dividend policy there must use a combination of financial notions, psychological and behavioral traces, otherwise tests of dividend policy theory will remain without certain result and inconsistent.

Amido (2007) studied the effect of dividend policy on financial performance of companies in Ghana Stock Exchange. The results demonstrated that there is a positive relation between return on assets, dividend policy and trade rate, also there is a negative relation between return on assets and dividend payout ratio. They also indicated that dividend policy has a positive and significant effect on listed companies' performance in Ghana.

Setayesh and Kazemnejad (2009) examined the impact of intellectual capital on financial performance of listed corporations in Tehran Stock Exchange. The result showed that intellectual capital affects that return on assets and assets turnover ratio, and has a positive effect on company's future performance. Its effect on various industries function is different.

Pourzamani et.al (2012) studied the impact of intellectual capital on market value and financial performance. The result indicated that intellectual capital coefficient and market value is insignificant, also intellectual capital efficiency coefficient has a positive and significant effect on companies' financial performance (return on assets).

E'temadi and Chalaki (2005) assessed the relation between performance and cash dividend payment in listed companies in Tehran Stock Exchange. Investigating factors in this study include price Bid-Ask spread, corporate governance criteria, company's size, profitability and growth opportunities are considered as independent variables, and dividend policy is seen as a dependent variable. The findings indicate that there is no significant relationship between Bid-Ask spread, corporate governance quality, firm size, growth opportunities and dividend policy of companies in Tehran Stock Exchange. But there is a positive and significant relation between firms' profitability and dividend policy.





Atefeh Khoshahang and Abdorreza Asadi

Research questions

Based on theoretical framework and backgrounds, this research aimed to answer following questions:

Main question: Is there any significant relationship between intellectual capital, dividend policy and future financial performance?

1. Is there any significant relationship between intellectual capital and dividend policy?
2. Is there any significant relationship between intellectual capital and future financial performance?
3. Is there any significant relationship between dividend policy and future financial performance?

Research hypotheses

In regards with the above questions, three hypotheses have been developed as following:

1. There is a significant relationship between intellectual capital and dividend policy.
2. There is a significant relationship between intellectual capital and future financial performance.
3. There is a significant relationship between dividend policy and future financial performance.

Research method

Regarding to the research objective, this study is a practical research. Financial data is extracted from financial statements, and official databases in the stock market. This research is an experimental and descriptive one based on data collection. To analyze the data and to test hypotheses simple regression and data panel method has been used. After required data recalculation, Eviews software has been used. Population of this research includes all listed companies in Tehran Stock Exchange based on following criteria:

- 1) Companies which have paid cash dividend over previous 6 years.
- 2) Company's financial year ends to March 20.
- 3) Company must not be excluded from the market over the analysis period.
- 4) Financial data must be presented completely for the period.
- 5) Companies in financial industry such as banks, insurance companies, and investment companies are excluded from the sample.

The study period contains a 6 year period from Time domain of this research is from 2006 to 2012. Regarding to above conditions, the sample includes 116 listed companies in Tehran Stock Exchange. In this study intellectual capital is considered as an independent variable. Dividend decision, return on assets and market value added are considered as dependent variables. Moreover firm size and age are used as control variables.

RESEARCH FINDINGS

As one of the basic assumptions of regression analysis is normality of error terms, normal probability graph is used to test the normality assumption. To test autocorrelation assumption of error terms of the model, Durbin-Watson statistic has been used. Regarding with research data, panel data structure is employed in the study, so in order to examine the relation of every independent variables and dependent variable, correlation test and multiple regression models have been used.





Atefeh Khoshahang and Abdorreza Asadi

First Hypothesis Test

For first hypotheses dealing with relation between intellectual capital and dividend policy, regression model of first relation is tested:

$$DPR_t = \alpha + \beta_1 IC + \beta_2 SIZE + \beta_3 AGE + e \quad (1)$$

Where:

DPR_t is a proxy for firm dividend policy in year t which is calculated by following formula:

$$DPR_t = (DPS_t) / (EPS_t) * 100$$

IC_t is intellectual capital value of company in year t, which is calculated by following formula:

$$IC_t = \sum_{t=1}^T (Mv_t - BV_t) / (1+It)$$

Where:

MV_t is firm market value, BV_t is book value and It is inflation rate;

SIZE is a proxy for firm size and calculated as: SIZE = Ln Total Assets

AGE is a proxy for firm age;

Table 1 shows the result of testing first hypothesis and assessing first model. It is seen that statistical value of regression model F is 2/198 and its significant level is 87%, indicating that although the model of equation 1 at 95% confidence level is insignificant, but it can be significant at 90% level, that one can conclude that insignificant of this model has been weakly estimated.

Based on the results in table 1, it can be mentioned that analytical model is insignificant for research data. In other words it can be said there is no significant relationship between intellectual capital and dividend policy at 95 percent level.

R-square of the model is 0.008 indicating that independent variable (intellectual capital) has a weak explanation for dependent variable (dividend policy), that can be considered as an approval of rejecting the investigated model. However, Statistics of Durbin-Watson is estimated 1.8 showing that there is no problem of autocorrelation among error terms of the model.

Second Hypothesis Test

To test second hypothesis which investigates the relationship between intellectual capital and next year firm financial performance (return on assets and market value added), two following models of regression is used:

$$ROA_{t+1} = \alpha + \beta_1 ROA_t + \beta_2 IC_t + \beta_3 SIZE + \beta_4 AGE + e \quad (2)$$

$$MVA_{t+1} = \alpha + \beta_1 MVA_t + \beta_2 IC_t + \beta_3 SIZE + \beta_4 AGE + e \quad (3)$$

Where:

ROA_t is return on assets in year t estimated as following: ROA = (net interest)/(total assets)

MVA_t is market value added in year t calculated as following:

$$MVA_t = \text{Market value of equity} - \text{Book value of equity}$$

The results of the models 1 and 2 are presented in table 1 and 2 respectively. In respect to statics values F in these tables and that probability values of that (P-value) is smaller than 0.05, it can be concluded that the models are statistically significant, so models 2 and 3 are significant in 95 percent level. Therefore the second hypothesis is accepted based on relationship between intellectual capital and next year firm financial performance. The calculated R-square in table 2 equals to 0.61 and in table 3 equals to 0.71 indicating that intellectual capital variable along with





Atefeh Khoshahang and Abdorreza Asadi

other model variables can explain changes of future financial performance (return on returns and market value added).

On the other hand, the values of Durbin-Watson in the tables are 1.98 and 2.47 respectively that can represent absence of autocorrelation problem among error terms of the regression models. As you can see in table 2 calculated T-statistics for return on assets and intellectual capital is larger than its critical value in that table and also related probability value (p-value) is smaller than 0.05 indicating that relationship between these two variables is significant.

Third Hypothesis Test

To test third hypothesis investigating relationship between dividend policy and next year firm financial performance (return on assets and market value added), the following regression models are used:

$$ROA_{t+1} = \alpha + \beta_1 ROA_t + \beta_2 DPR_t + \beta_3 SIZE + \beta_4 AGE + e \quad (4)$$

$$MVA_{t+1} = \alpha + \beta_1 MVA_t + \beta_2 DPR_t + \beta_3 SIZE + \beta_4 AGE + e \quad (5)$$

As you can see, the results of the models 4 and 5 are presented in table 4 and 5 respectively. As statistics value F in these tables are larger than critical value of the table and as its probability value (p-value) is smaller than 0.05, it can be concluded that regression models are significant at 95 percent level. Therefore second hypothesis of research is accepted according to relation between dividend policy and next year firms' financial performance. Calculated R-square in table 4 equals to 0.42 and in table 5 equals to 0.71 which indicating that explanatory variables can well describe the changes of future financial performance.

On the other hand, Durbin-Watson statistics in these tables are 2.07 and 2.49 respectively, showing that no autocorrelation is observed among error terms in the regression models.

In table 2 it is seen that calculated statistics value T for return on assets variable is bigger than its critical value in the table, and also the related probability value (p-value) is smaller than 0.05 which means that the relationship between the variables is significant. As it is, based on table 5 estimated statistics value T for variables such as market value added and firm size and smaller value of related probability (p-value) than 0.05 it is concluded that relationship between these variables and market value added is significant.

DISCUSSION AND CONCLUSION

Regarding to results from research hypotheses testing it can be concluded that first hypothesis assuming that there is significant relationship between intellectual capital and dividend policy is rejected. It means that firms' dividend policy cannot be considered as a function of market value added; in fact firms' market value added is a function of investors' attitude and capital market analysts of present and future performance and liquidity of the market and trades while dividend policy is a function of firms' internal performance. It is so when the results of statistical analysis from second hypothesis show that there is a significant relationship between intellectual capital, return on assets, and also market value added. In other words intellectual capital and firms' performance with its future performance have a significant relationship. The results are consistent with Zhigal and Maloul (2009) and Namazi and Ebrahimi (2010). As it is said about the results of third hypothesis, statistical analysis indicates that a significant relationship can be observed between dividend policy and firms' future performance. This result is also consistent with E'temadi and Chalaki(1384), and Amidu (2007).





Atefeh Khoshahang and Abdorreza Asadi

REFERENCES

1. Etemadi, H. and Chalaki, P. (2005). Relationship between performance and cash dividend payment in listed companies in Tehran stock exchange over period of 1998-2002, Accounting and Accountancy studies. No 39, Ps 31-47.
2. Pourzamani, Z. Jahanshad, A. and Mahmoudabadi, A. (2012). The impact of intellectual capital on market value added and financial performance, Accounting and Accountancy studir, Version 19, No 2, Ps 30-70.
3. Setayesh, M.H. and Kazemnejad, M. (2009). To study impact of intellectual interest on companies performance in listed companies in Tehran stock Exchange, Accounting progresses Journal, Shiraz University, First Volume 57.3.
4. Ghalichli, B. and Moshabaki, A. (2006). Role of social capital in making intellectual capital of organization (Studying two Iran car factories). Season letter of management knowledge, 19(75), 125-147.
5. Hashemi, S.A. and Rasaeiyan, A. (2009). Study of effective factors on dividend policy of listed companies in Tehran Stock Exchange, Journal of Official & Economical science faculty, Isfahan university, 20th year, No51, Ps 187-213.
6. Amidu, Mohammed. (2007). How Does Dividend Policy Affect Performance of The Firm on Ghana Stock exchange. Investment Management and Financial Innovation, Vol4.
7. Beiner. Stefan, (2001). Theories and Determinants of Dividend Policy, available at: www.sbf.unisg.ch.
8. Bontis, N., Dargonetti, N.C., Jacobsen ,K. and Roos ,G . (1999). The Knowledge toolbox: A review of the tools available to measure and manage intangible resource. European Management Journal ,Vol.17 No.4 ,pp.391-402.
9. Bontis, N. (2000). CKO wanted-evangelical skills necessary: a review of the chief knowledge officer position. Knowledge and Process Management, Vol.7, No.4, in press.
10. Brooking, A. (1996). Intellectual capital, International Thompson Business Press, London. Chen, J., Zhu, Z., & Xie, H.Y . (2004). Measuring intellectual capital: a new model and empirical Study. Journal of Intellectual Capital, Vol.5, No.1, pp.195-212.
11. Frankfurter, Georgo M .and Bob G.Wood, Jr.(2002). Dividend Policy Theories and Their Empirical Tests. International Review of Financial Analysis 11, pp.111-138.
12. Maditinos, D., C. Chatzoudes, C. T sairidis, And G. Theriou . (2010). The impact of Intellectual capital in firms market value and financial performance. MIBES.433-447.
13. Stewart, T. (1997). Intellectual Capital: The New Wealth of Nations, Doubleday.Dell Publishing Group, New York, NY.

Table1: Results of the effect of Intellectual Capital on Dividend Policy

Variable	Estimated parameter	T-Value	P-Value
Constant	0.98	4.60	0.000
IC	6.06×10^9	1.35	0.177
SIZE	- 0.02	- 0.56	0.572
AGE	-0.003	-1.99	0.047
R-Square	0.008		
Adjusted R-Square	0.004		
F-Value	2.198		
P-Value	0.087		
Durbin-Watson	1.8		





Atefeh Khoshahang and Abdorreza Asadi

Table2. Results of the effect of Intellectual Capital on Future Return on Assets

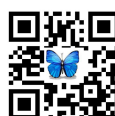
Variable	Estimated parameter	T-Value	P-Value
Constant	0.086	2.64	0.008
ROA	0.76	29.67	0.000
IC	3.48×10^{-9}	3.96	0.0001
SIZE	- 0.008	- 1.49	0.136
AGE	-0.0001	-0.77	0.437
R-Square	0.61		
Adjusted R-Square	0.6		
F-Value	271.07		
P-Value	0.001		
Durbin-Watson	1.98		

Table3. Results of the Intellectual Capital on Future Market Value Added

Variable	Estimated parameter	T-Value	P-Value
Constant	$- 4.77 \times 10^{12}$	- 3.16	0.0016
MVA	2.03	2.79	0.005
IC	-1066433	-1.25	0.2094
SIZE	9.18×10^{11}	3.51	0.0005
AGE	$- 1.27 \times 10^{10}$	-1.38	0.1682
R-Square	0.71		
Adjusted R-Square	0.71		
F-Value	426.93		
P-Value	0.001		
Durbin-Watson	2.47		

Table4. Results of the effect of Dividend Policy on Future Return on Assets

Variable	Estimated parameter	T-Value	P-Value
Constant	0.024	0.74	0.45
MVA	0.64	23.68	0.001
DPR	0.007	1.21	0.22
SIZE	0.004	0.81	0.41
AGE	$- 1.09 \times 10^6$	-0.005	0.99
R-Square	0.42		
Adjusted R-Square	0.41		





Atefeh Khoshahang and Abdorreza Asadi

F-Value	146.57
P-Value	0.001
Durbin-Watson	2.07

Table5. Results of the effect of Dividend Policy on Future Market Value Added

Variable	Estimated parameter	T-Value	P-Value
Constant	- 4.73 × 10 ¹²	- 3.10	0.002
ROA	1.12	33.26	0.001
DPR	4.70 × 10 ¹⁰	0.19	0.843
SIZE	9.03 × 10 ¹¹	3.45	0.0006
AGE	- 1.24 × 10 ¹⁰	-1.35	0.176
R-Square		0.71	
Adjusted R-Square		0.70	
F-Value		425.6	
P-Value		0.001	
Durbin-Watson		2.49	





RESEARCH ARTICLE

The Evaluation of Technological Capabilities in Pipe and Fittings Industry (A Case Study: Iran's International Super Pipe Company)

Behzad Araghi Kazaz

University of Industries and Mines of Alborz.

Received: 18 Jan 2015

Revised: 21 Feb 2015

Accepted: 19 Mar 2015

*Address for correspondence

Behzad Araghi Kazaz,
Ph. D Student of Business Management,
University of Industries and Mines of Alborz,
Alborz, Iran.



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License** (CC BY-NC-ND 3.0) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

Lack of awareness and knowledge of the technological levels of firms and using them in accordance with the relative advantages is one of the main factors in failure to gain competitive advantage in developing countries firms. The evaluation of technological needs is an instrument to determine the technological capabilities needed to implement technological priorities. Technological requirements assessment not only identifies weak and problematic areas of firms, but also considers and determines the relative advantages of firms. In the present paper, we try to analyze the technological capabilities level of Super Pipe International Company using the technological assessment needs model. This model analyzes technological capabilities level from 9 dimensions and in each situation, it determines the condition of the firm and proposes suggestions to decrease the existing gap.

Key words: technology, technology assessment, technological needs assessment model

INTRODUCTION

Technology is all the knowledge, products, tools, methods and systems which are employed to serve a product or service. Technology is the process of transmitting and converting resources into products by means of knowledge, experience, information and technological strategic tools is the process of determining investment processes of increasing in technological capabilities and in line with the firm's macro strategy. Technological strategy means determining investment priorities based on the macro strategy (long-term goals) of the firm. The aim of business strategy is to obtain stable technological advantage that is followed by a certain competitive advantage. These two strategies must be fully connected and integrated together. Technology management will be successful when proper communication is established between business strategy and technology strategy. Indeed, successful business is the



**Behzad Araghi Kazaz**

integration of technology innovation, financial marketing and human resources in order to fulfill the defined objectives (Khalili, 2002).

REVIEW OF LITERATURE

Technology is the process of transferring and converting the resources into products through knowledge, experience, information and tools (Tareq Khalil, 2002). Also, innovation is defined as conversion of knowledge and futures into new products and findings, processes, services and or for obtaining competitive advantage. Technological and innovative capabilities in industry include technical, managerial and institutional skills and stems from the combination of knowledge and skills of members of firms over time. Innovation capabilities are only one aspect of technological capabilities. Technological capabilities are ways that an organization interweaves all the cases such as skills, individual learning, educational qualifications, object technology in machinery etc. to act as an organization. This process is accompanied by frequent interaction between members, efficient flow of information and decisions and synergy (Lal, 2006). Furthermore, technological needs assessment is a framework and instrument which has been designed for identifying and providing the required capabilities to implement technological priorities in developing countries. Porter (2002) believes that technological capability assessment is a study to identify the strengths and weaknesses of the organization's technological assets and its aim is to assess the firm's technologic condition compared to its rivals and the most advanced technologies. Today along with technological developments in different levels and also necessity to use modern technologies, the need for technology assessment is more felt than before (Porter, 1998). Technology assessment is a tool or framework which helps to have a better understanding of technology and utilizing new technologies and decision making about it. Thus in orders to develop and use modern technology, one must at first assess the existing condition of technology. Also, technology audit in order to identify and evaluate technological gap (assessing the level of existing technology and measuring the gap distance to desirable level), evaluating the causes and effective factors in creation of technology gap and assessing the firm's power to overcome the gap (Brown, 2004). In our country the subject of technological capabilities assessment at the level of firms has been ignored and there has not been any cultural developments. Even if some organizations tend to move in this direction, there are a few numbers of references and resources available at the firms' level. Nowadays, in order to remain in competition, organizations must inevitably turn to the development of technology and the innovation of advanced technologies. But the important question is: On the way to technology, which route is the best to minimize technological gap? (Jaafarnezhad, 2007). Various models are related to assessing technological capabilities which are presented below in three sections in Table 1.

Research questions and objectives

The aim of this research is to determine the level of technological capability of the International Super Pipe Company. According to its objective, the present study is an applied one.

The research questions are as follows:

1. At what level are the technological capabilities of International Super Pipe Company's at each of the indices?
2. At what level are the technological capabilities of International Super Pipe Company in each of the dimensions and what is the extent of the company's technologic gap at each of dimensions?
3. What solutions are there in order to eradicate the technological gap and what ways are proposed?
4. Introducing the Model Used in the Research

In order to assess the technological capability of the firm in this research, technological needs assessment model is used. According to this model the firms' capabilities are assessed in 9 dimensions based on a questionnaire. Classification of technological capabilities of this model includes:



**Behzad Araghi Kazaz**

1. Awareness capability which means ability or awareness to take part in identifying the need for technological improvement
2. Searching capability which is the ability to identify opportunities and technological threats
3. Core competency creation capability is the ability to make core meritocracy (among the competitors)
4. Technological strategy capability that is the ability to develop a suitable strategy to support business
5. Technology assessment and selection capability that is the ability to participate in assessments and finding out appropriate technological solutions
6. Acquisition of technology capability that means the ability of participation and taking the advantage of technology
7. Utilizing and attracting technology capability that is the ability to participate in the implementation and effective use of technology
8. Learning capability which is the ability to participate in learning from the former experiences to make use of them for improving technology and new products
9. Exploiting foreign links capability that means the ability to take part in the network of provision and exploitation of foreign links (universities, cooperation with institutions and research and consultation institutes, state encouragements and so on)

After completing the questionnaires by professionals, their scores were added together and the total grades along with the values inscribed in Table 1 have been compared and finally this result of this study and comparison demonstrates the firm's capabilities. Of course in order to obtain more accuracy, the total numbers of scores have been multiplied by 5.

According to this model and based on the classification in Table 2, the firms are divided into four kinds regarding their capabilities:

The first kind of firms are inactive ones: They are firms which are not well aware of their needs to transfer technology or environmental improvements and do not know which of their technological capabilities to develop. It is unexpected that such firms are able to have a stable policy and trend in a critical situation.

The second type is responsive type: These firms well recognize the need for improving the technological capabilities for obtaining development and growth goals, but due to their limited local resources (such as lack of key skills and individual expertise in technology) they only respond to environmental threats and are not capable of benefiting from the events.

The third types are strategic firms: These firms are well aware of how to improve their technological capabilities, they have a strategic outlook and are high in performing their objectives.

The fourth kinds of firms are creative firms: Most of these firms (such as Microsoft and Ford and etc.) have average or high incomes and perform quickly in improving their functions.

International Super Pipe Company of Iran

The most important event in Iran's pipe industry happened in 1995, and for the first time, five-layer tube production at the Super Pipe Company began. Super Pipe is the first company that with a different approach, though produces pipe and fittings but its product is for the customers (wiring systems). In fact the product that the customer receives from Super Pipe is a package of services and technical expertise- engineering and construction, in addition to industrial Super Pipe products.



**Behzad Araghi Kazaz**

The population and group in this research included senior, middle and executive managers of International Super Pipe Company with educational degrees of B.A. and M.A. who have been working at the time of research. The sample was randomly selected and the sample size was determined using the Cochran method.

FINDINGS

Question 1: At what level is each of the indices of International Super Pipe Company?

The results of the first question of the questionnaire are presented in Table 4.

Question 2: At what level are the technological capabilities of International Super Pipe Company and what is the extent of company's technological gap in each of its technological dimensions?

The results obtained from the second question of the research are presented in Tables 4 and 5.

Question 3: According to the ability levels of Super Pipe International Company, what is the classification of such companies?

Regarding the point that all the indices are indicative of the total technological capability, after multiplying the score of 71 by 5 we gain the number 355 according to which the level of capability of International Super Pipe Company is at classification C which is an advanced level.

RESULTS

Type C companies (strategic) have a vision of how to develop their technological capabilities. They have great ability in performing their projects and have a strategic outlook to fostering their capabilities. Due to a vivid priority-centered approach, such companies are capable of strategy formulation and increasing their internally growing capabilities in management and technical areas. Although type C companies are able to respond effectively and quickly to the environmentally-centered technological laws but these companies require new policies to increase innovation in leadership sections. They might also need to have better access to capital goods and services.

Type C companies benefit from strategic awareness that is concentrated on the most recent technologies that might be required for short and long term and might need other companies' efforts and supports to develop technology among small and big corporations and other little developed companies. These companies in most areas often pass behind the boundaries of technology and gradually make themselves capable of moving toward companies of type D meaning companies that are greatly innovative and creative and finally according to this point that based on the findings of research and analysis, in these companies there is a great gap in their exploitation dimension of foreign links, the managers must, in different chapters of this section of this dimension with an exact and comprehensive planning that has a desirable and favorable timing, make their attempt to other than eradicating this gap take effective strides to develop the company from strategic level to creative level one after the other.

REFERENCES

1. Brown, Ernest (2003). Technology Assessment and prediction. (Trans. Alireza Bushehri and Aghil Meleki Far)Future Strategic Institute, Tehran.
2. Khali, Tariq (Bagheri, Seyed Kamran et al.). (2002). Management technology. Published by Payame Matn, Tehran, Iran.
3. Khamseh, Abbas et al., (2010). Evaluation of technological capabilities in the metal industry by the technological needs model (study of metallic structures of Yasan). Fourth Conference of Technology Management.
4. Kianwie, (2003). The Major Channels of International Technology Transfer to Indonesia.
5. Jafarnezhad, Ahmad et al. (2006). Audit of technology and provision of appropriate solutions to reduce technology gaps. Journal of Management Sciences.





Behzad Araghi Kazaz

6. Lall, S. (2006). Technology policy and market encouragement. Industrial Policy Bureau of Sharif University, Technology Research Center, Tehran, Iran.
7. Porter, M. (1998). Competitive advantage: creating and sustaining superior performance. Free Press: New York.
8. Tabataian, S. H. (2005). Evaluation of technological capabilities at the firm level. Arian Press: Tehran.
9. Unido (2002). Technology and needs assessment developing countries, www.unido.org.

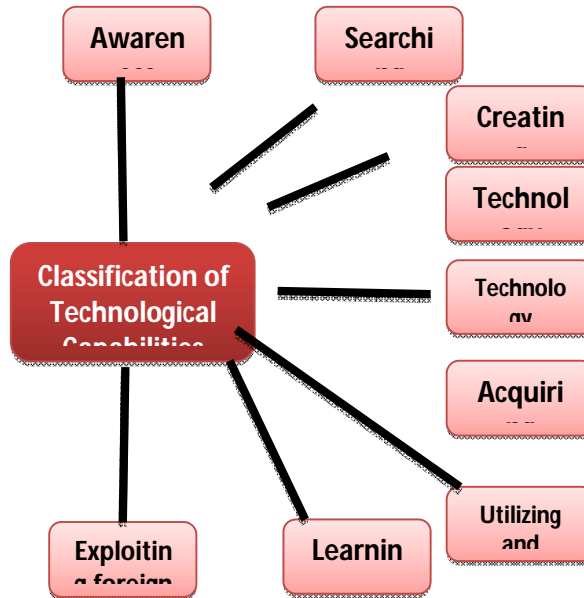


Figure 1. The classification of technological capabilities assessment

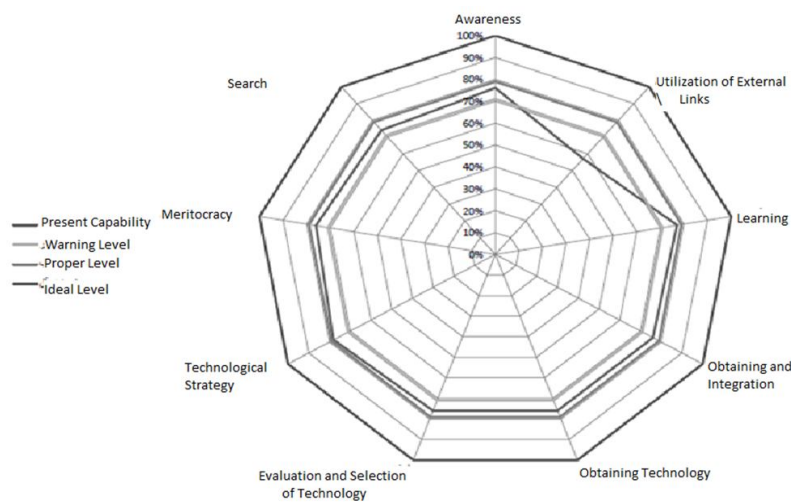
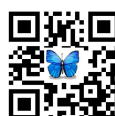


Figure 2. The capability level of each dimension and the existing gap amount





Behzad Araghi Kazaz

Table 1. The Classification of Technological Capability Assessment Models

Models to Determine the Technology Gap	Models to Assess the Causes of Technology Gaps	Models Providing Solutions to Compensate for Technology Gaps
Atlas Technology Model Porter’s Model Panda and Ramanason’s Model Floyd’s Model Technological Needs Management Model Technological Content Assessment Model Technological Condition Assessment Model Economic Added Value Model	Ford’s Model Lindsay’s Model Atlas Technology Model Floyd’s Model Technological Needs Management Model Technological Capability Levels Model	Ford’s Model Lindsay’s Model Fall’s Model Garcia-Arreola’s Model Lin’s Model Technological Needs Assessment Model Information Systems of Science and Technology Model Technological Needs Model

Table 1. Audit

Total audit results	Total	Level	Classification	Micro classification	
	Scores	Capabilities	Firms		
Technology strategy is weak and immediately needs an improvement program.	1-120	1	Inactive A	1-40	Novice
				41-80	Intermediate
				81-120	Advanced
Your company is poorly developed in most areas of strategy, research, acquisition and capacity building and needs great capabilities to regenerate these areas.	121-240	2	Responsive B	121-160	Novice
				161-200	Intermediate
				201-240	Advanced
Your company is relatively strong in internal capabilities and has a strategic approach to technology, but in most areas of national technology is behind.	241-360	3	Strategic C	41-280	Novice
				281-320	Intermediate
				321-360	Advanced
Your company has a well-developed set of technological capabilities and can identify national boundaries of technology. In a number of areas also it has a creative and pioneering approach to gain competitive advantage.	361-470	4	Creative D	401-420	Novice
				421-440	Intermediate
				441-480	Advanced





Behzad Araghi Kazaz

Table 3. The Descriptive Parameters of the Population

Raw	Academic Level	Number	Work experience average (years)
1	M. A.	14	8
2	B. A.	16	12
	Total	30	20

Table 4. The Capacity Ratings of Each of the Indices

Dimensions	Row	Indices	Technological Capabilities (Percentage)
Awareness	1	Our company is aware of its most important technologies in commerce.	75%
	2	Technology plays a vital role in the commercial strategy of our company.	78%
Research	3	Our company is well prepared for the assessment of technological opportunities.	76%
	4	Our company is able to assess its technological weaknesses without any problems.	72%
Meritocracy creation	5	Our company has certain capabilities from which it can benefit.	75%
	6	Our company is aware of its local and foreign resources.	78%
Technological Strategy	7	The management team of our company is skillful in organizing its technological strategies to achieve its commercial goals.	76%
	8	Our company knows its basic technological priorities.	78%
	9	Our company has a suitable perspective for technological development.	79%
Assessment and technology selection	10	Our company knows how to provide its required technologies.	77%
	11	Our company is aware of the best technological resources.	75%
Technology Acquisition	12	Our company performs effectively in the acquisition of technology from foreign sources.	75%
	13	Our company is related to the foreign providers of technology.	78%
Utilizing and attracting technology	14	Technological activities of our company (engineering, research and development) are effectively organized.	76%
	15	Our company has clear process for technological projects.	75%
Learning	16	Our company has a suitable system for assessing technological projects.	74%
	17	Our company cares about future projects and examines them.	78%
	18	We have the ability to learn from one technology to another technology.	79%
Exploiting	19	Policies of government encourage us to invest in technology.	48%





Behzad Araghi Kazaz

Foreign Links	20	We take advantage of individuals outside the company to develop our technology.	57%
	21	We benefit from technological consulting firms / consultants to assess technology.	61%
	22	We take advantage of other companies to implement our strategic technologies.	65%
	23	We benefit from universities in the implementation of our key projects.	53%
	24	We have co-operations with major research centers in doing governmental projects.	57%

Table 5. The Ability Level of each Dimension and the Gap Amount

	Existing Capability	Gap to the Ideal Level	Gap to the Desirable Level	Alert Level	Desirable Level	Ideal Level
Awareness	76%	24%	2%	71%	79%	100%
Searching	74%	26%	4%	71%	79%	100%
Creating Meritocracy	76%	24%	2%	71%	79%	100%
Technological Strategy	78%	23%	1%	71%	79%	100%
Assessment and Technology Selection	76%	24%	2%	71%	79%	100%
Acquiring Technology	76%	24%	2%	71%	79%	100%
Exploiting and Attracting	76%	24%	3%	71%	79%	100%





Media and the Role in Developing the Tourism

Abolfazl Memarinia^{1*}, Akbar nasrollahi² and Ali nahavandi³

¹PhD Student in Media a management, Imam Reza International University, Mashhad, Iran

²Assistant professor of Faculty of Communication, Islamic Azad University of Tehran

³CEO of Islamic Republic of Khorasan Razavi Broadcasting.

Received: 18 Jan 2015

Revised: 21 Feb 2015

Accepted: 19 Mar 2015

*Address for correspondence

Abolfazl Memarinia

PhD Student in Media a management,

Imam Reza International University,

Mashhad, Iran

E-mail: memarinia@gmail.com.



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License (CC BY-NC-ND 3.0)** which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

Nowadays, tourism industry is proposed as one of the most lucrative industries in the world and the rapid growth of this industry in the world have surprised many economic experts. Also the role of the media in informing the individuals and influencing the minds is obvious for most of the people. In this article, the effect of the media on growth and increasing tourism is discussed.

Key words: tourism, lucrative industries

INTRODUCTION

Nowadays, tourism industry is proposed as one of the most lucrative industries in the world and the rapid growth of this industry in the world have surprised many economic experts (Abdolmaleki, 2008). The statistics of amount of international transactions in 1990 decade shows that tourism industry is the world's 3rd most lucrative industry and nowadays after 2 decades, tourism industry is the first lucrative industry in the world. So that its profitability is same as the oil industry or even higher. Thus, economic expert forecasts indicate the astonishing growth of the tourism industry in the near future.

Development of tourism as part of social and cultural development of the country, in addition to attention to income, employment and economic and cultural positive impacts, it is so important. So most of governments are trying to provide most important part of the national income from the tourism industry, because income of tourism in comparison to its costs is very high.



**Abolfazl Memarinia et al.**

Impact of tourism in reducing unemployment, increasing income levels, market growth and fair distribution of incomes are some of the economic benefits of developing tourism industry. Averagely, for the arrival of each tourist, 2 to 6 job opportunity will be created directly. In the calculations of economists, development of this trend with considering the jobs in manufacturing and service segments, each tourist leads to create jobs for 9 to 15 persons indirectly. The cost for the creation of jobs in the service and industry sector is between 12 and 25 thousand dollars, however, this amount of investment for the lucrative tourist industry is very small. In recent years tourism has accounted for 1.5% of national income in the world, while the share of each of the arms, oil and steel industry would not be 5%.

With considering these advantages, importance of attracting tourists with the aim of earning will be felt more than ever. So the competition in this field as in all major industries without introducing new and innovative ideas is almost impossible. Hence one of the most important strategies for governments to provide tourism attractions is creating spirit of flexibility and innovation in all sectors of the economy. The mass media with indirect manner, but overall, transferred a lot of knowledge to an audience that influences the routine life of that individual. Obviously, people are not exempt from these influences. Also several research evidence suggests that mass media, especially television and movies and the press, can affect knowledge and beliefs of national audiences (Short and Barrett, 1992, Amadeo et al, 2002).

Media

Television is proposed as a pervasive medium which has special importance and sensitivity in informing and increasing public awareness of the society and public thoughts. Effective and influential medium of television, with the benefit of sound, image and color and coordinating them and production of the message, is able to bring along a lot of numerous audiences. Television is known as a big university, the university that can affect millions of its customers with pervasive public education and then persuade to change their beliefs and attitudes. In fact, if used properly this useful medium and its message production and its applications adapted with language and characteristics of audiences, then we can observe the deep and essential changes in behaviors of audiences of television.

Therefore, thorough understanding and knowledge of the characteristics of the audiences and producing message and program compatible with language and interests of the audiences, can increase effectiveness of television messages and achieve one of the most important duties and missions of this national media.

Television and its functions

Television is representative of the Cultural Revolution which the culture of the written word is replaced by speech and drama culture. A tool that instead of mediators and mediation, with the development of a ubiquitous society, establishes direct connection between the government and the people. This media through valuing the observation of appearances rather than deepening and thought, defined the conditions and traditional mechanisms of culture transmission and changed the definition and meaning of moral and social values. Television has an obvious, rapid, direct and penetrant effect on society. These effects affects Bases, behaviors, cultures, traditions, habits, social relations. On the other hand, there is enough evidence that proves television and radio facilitates personality and identity-seeking process and leads to personality coding on audiences. In identity-seeking, the personality unconsciously becomes similar to that one which has feeling toward it (Cazneve, 1900).

Therefore, radio and television play a determinant role in characterization and presenting pattern to the target audience society. Also, in addition to entertainment role, education role is one of the most important functions of television and radio. Practically, all the programs of radio and television have the ability of education, because both



**Abolfazl Memarinia et al.**

of them include messages with meaningful cultural contents. The media can be used in addition to the curriculum programs, broadcast programs in order to promote public knowledge and information, improve the technical knowledge and skills in certain stratum of society and encourage their artistic talent which is the cultural prophecy of media. Therefore, the use of radio and television in education in every community due to cultural, social and economic differences, needs fundamental research and special programs. Because technological facilities and innovations can only be useful in educational system if responses the real needs of society.

However, radio and television with its miraculous power in less than a century, could transform the world into a village and can report a small event in every location of the world to all the people of the world in time. On the other hand, influential and powerful media of television and radio, with producing and manufacturing applications, engaged in a culture trend and achieved success in this way. So if radio and television have a systematic plan for information, education and entertainment, can attract more audiences and leads to dissemination with thought and culture (Hosseini, 2010).

Tourism

Bourkat and Madlick believes that tourism is a temporary and short trip where tourists are introduced to journey to an area outside of the residence and work place (Kazemi, 2007). The World Tourism Organization defines tourism beyond the usual holiday spending, it includes all the activities that tourists do and tourist is a person who spend less than one year in a trip in order to leisure, business and so on (Ranjbarian, 2009).

Media effectiveness

Media theories help us to know the effect of media on audiences. For example, Elizabeth Noel Nioman paid attention to both the process and way of affecting. Of course audiences are considered with emphasis on effect process and cultivation theory. For assessment the impact of media on audiences, two matters should be considered seriously:

Nature of the media**Normal situation of audiences in message delivering time**

Nature of the media has a direct and undeniable impact on the type of message, audience, and even the mechanism of instant messaging. Media that uses only one sense in sending a message, has a different process and effectiveness in comparison with the media that takes advantage of multiple senses. On the other hand, natural situation of audiences in message delivering time is different with each other. For example, radio listeners have the opportunity to listen to the radio during the work. Chris Wilson emphasizes on listening to radio and know it as a passive act. But Mac Lohan believes the deterministic nature of media. For example, radio should works hard on audience involvement and attract the attention of audience among elements that lead to distraction. Otherwise, its effectiveness is reduced (Khojasteh, 2006).

Media and tourism

Media is important in illustration of locations and shaping geographic perceptions of individuals. Lifestyles and popular culture is formed through media illustration. Characteristics of media functions and their impact on the outer and inner area of tourism, is a base for researches in different fields. For example, researchers of tourism marketing analyze the perceptions and selections of consumers that may be formed through media images from destinations (Days, 2007).



**Abolfazl Memarina et al.**

Media can play an essential role in the tourism industry through capabilities and functions such as informing, education, entertainment, persuasion and creating culture. Great Britain Tourism Organization claimed, tourism stimulus films can be used as a travel of tourists to a destination or attract tourists to a destination or a place displayed on TV, video or movie screen (Garihult, 2003).

Television programs are so important in which most of people make travel decisions based on television programs. Researchers like Botler that discusses the media impacts, believes that media forms affect people for long time. Paintings stimulate tourists in the eighteenth and nineteenth centuries to visit certain places. Films also in modern time, stimulate the curiosity of tourists (Butler, 1990).

Activities such as assessment, persuasion, awareness, effective communication and use of new technologies in the field of media is a reason that many countries are among the best in the world in terms of attracting tourists. Illustration of facilities, capabilities and different attractions of a country or place, persuade an individual to visit the scene. This will occur through media activities. So, strengthening the role of the media and their functions in various areas of tourism development will be necessary. Countries that choose the tourism as the element of earning, knows exactly the scientific and professional methods in providing services, communication, supply and demand management, persuasion and awareness and informing. Thus, providing research facilities and backgrounds in mentioned areas becomes necessary to strengthen the tourism industry.

CONCLUSION

Nowadays, Media affects more on changing attitudes and public opinion that incorrect attitudes can be replaced by true attitudes through mass media. Actually media is the essential tool for transforming information in different layers of society that media can create new thinking for development of country and society. Nowadays tourism industry is one of the rapid growing industries in the world due to lower cost and higher income. So many countries are making policies in order to attract more tourists that becomes a reason for competitive market in tourism industry. Therefore, to use capacities and functions of media in affecting audience thinking for attracting them will be useful.

REFERENCES

1. Hosseini, M., Z. Darvizeh, Z. Khosravi, M. Pourshahryari, 2010, the media's role in the development of national identity in adolescents in Tehran, Communication Research Quarterly, No. 2, V. 58
2. Khojasteh.,H, 2006,sociological reflections, research and development of radio, Tehran
3. Ranjbarian, B, Zahedi, M., 2009, recognizing tourism, Isfahan, Chaharbagh
4. Abdolmaleki, R. and Behkamal, Behshid ,2008, The role of information technology in tourism development; Mashhad, Khorasan Razavi Cultural Heritage and Tourism Organization
5. Kazemi, M., 2007, Tourism Management, Tehran: the study and formulation Books Social Sciences (SAMT)
6. Cazneve, J. ,1900, TV Power, translated by Ali Asadi, Amir Kabir Publishing Institute
7. Butler, R. (1990). The Influence of the Media in Shaping International Tourist Patterns. Tourism Recreation Research, 15 (2).
8. Grihault, N. (2003). Film Tourism - The Global Picture. Travel and Tourism Analyst, October.
9. Daye, M. (2007). Developing a Framework for the Study of Tourism and the media. Culture, Tourism and the Media. Nottingham University Business School.





RESEARCH ARTICLE

The Assessment of Influence of Virtual Social Networks on Social Identity of Women in Iran (Case Study: Facebook)

Masoumeh Seifi Divkolaii^{1*}, Ebrahim Fayaz² and Hasan Khojasteh³

¹Member of Young Researchers Club of Qaemshahr, PhD Student in Media a management, Imam Reza International University, Mashhad, Iran

²Assistant professor of Faculty of Social Sciences, University of Tehran

³Faculty of the University of the Islamic Republic of Iran Broadcasting.

Received: 18 Jan 2015

Revised: 21 Feb 2015

Accepted: 19 Mar 2015

*Address for correspondence

Masoumeh Seifi Divkolaii

Member of Young Researchers Club of Qaemshahr,

PhD Student in Media a management,

Imam Reza International University,

Mashhad, Iran

E-mail: m.seifidivkolaii@imamreza.ac.ir.



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License (CC BY-NC-ND 3.0)** which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

In this paper the influence of virtual social networks on some dimensions of social identity (including religious identity, ethnic, family and personal) is evaluated by using a survey study in Mashhad between two groups of female college students, those who have been as a members of the social network and those that have not registered in the social network. Studies and analysis showed that between the two groups in terms of religious, ethnic, family and personal identity the first group is weaker than the second group. This result suggests that qualitative changes in finding the correct identity taken place in the age of technology and the impact of the traditional channel in finding identity has lost its value. As a result, despite the efforts of traditional and informal institutions (family, religion) and the formal institutions cultural planning in influencing social identity, social networks has decisive impact on virtual social identity of understudied people in this research and interaction in social networks grounds in women's missing social identity.

Key words: virtual ,social networks, Facebook, identity, social identity





Masoumeh Seifi Divkolaii et al.

INTRODUCTION

New technology and its information highway, especially the Internet has led to the evolution of the intensity and extent of the relationship between human beings in the world and has created a qualitative transformation in humans' interactions with each other. In fact internet is a new phenomenon in a global world and the present era that provides a space for people who can get all the information and services they need from whenever and wherever they want to get. In the meantime, the political and cultural effects of new technologies got its own importance. Virtual social networks are such a new phenomenon that are caused by the integration of various communication technologies in recent years. These networks by providing easy membership for their users played vital role in managing the flow of news.

Despite social networking sites like Facebook, Myspace, Orkut, Twitter, Friend feed and tweeter in cyberspace, Facebook ranked as the most popular social network that different classes use it and in most countries, Facebook faced with a public reception According to provided statistics nearly 61 percent of Web users in worldwide visit a social network daily. In these figures, the social network Facebook, with 31.9 percent of the vote, has been named as the most popular social network. (Golder, 2007; Taheri, 2013) Facebook is a virtual social network in which users have the ability to share personal information, pictures and membership in various groups of their friends list. (Buckman, 2005) In Iran Unlike the filtering of social networks such as Facebook, in recent years many Iranian users due to the diversity of the network to communicate, exchanging information freely and lack of public space in Iran were members of the network. (Ameli, 2010: 304; Sedaghati fard, 2013)

Subject and nature of identity is one of the most challenging and widespread problems in recent decades that absorbed the attention of many scholars and researchers. Social identity is the main source of communication and interaction, and assigned as one of the main frameworks of organizing and pertinence in the meaning of social action spaces. Social identity is kind of an understanding of the relationship between the individual or group with others in the community that identifies individuals or social groups' positions and features in comparison with others (Turner, 1999:34). Presence in cyberspace and Internet usage, particularly in the form of continuous and contiguous and not in the form of crossing or marginal usage besides professional and semi-professional motivation or purely recreational, according to the characteristics, special features and functions of this space would have profound effects on many different aspects of Iranian identity forums. (Zokaei, 1996:165) In other words, the semantic environment and their interaction with the environment plays an important role in social identification. From those important constituent parts of this semantic environment one can name of social networks. If print media, the human of modern era leads to sustainable and certain identity, data and Internet Information and New electronic Media can make identity of users, the identity that is quite fluid and flexible. (Salehyar, 1998:3-4), so that emergence and spread of this new medium of communication had influence on identity of individuals. In other words, individuals with their membership can express their own word on there.

If we consider that the changes in communications technology have transformed the culture, we must recognize that new communication technologies that do not fit with the culture of the past created relatively stable heterogeneity, and this heterogeneity or cultural delay transposition has led to the emergence of a cultural crisis and change finds social expression. (Mohseni, 2001:45) this leads to the formation of a new identity and put him in a quandary that will update itself creates an identity crisis of the social damage cultural, personal and psychological Shvd.gstrsh such networks which appear to be major changes in values, attitudes and lifestyles people lead and change of identity, especially among women, is created.

Since social identity, social and personal behaviors that underlie several of the study and the importance of these changes, especially in women who have a family, on the one hand, and reveals the problems and possible injury from others may be in the planning problems and needs of women, beneficial and effective, according to showbiz Quotient



**Masoumeh Seifi Divkolaii et al.**

of the social network Facebook, compared with other networks, this paper has focused on the Facebook network. Therefore, the present study wants to study to what extent female identity is dependent on social networks such as Facebook.

Research objectives

The overall goal of this study was to analyze the role of virtual social networks on the social identity of women.

Research hypotheses

There is a meaningful relationship between the frequency usage of social networks and the social identity.

There is a meaningful relationship between the usage of social networks and each dimension of social identity (ethnic, religious, familial and personal) are related.

LITERATURE REVIEW**Identity**

The identity of the person is set of meanings to define one. (Burke, 2004). From two major meanings of identity one can name of absolute difference and similarity. Identity is rooted in the Latin language (identities takes root from Idem which means "similar or identical ")that itself has two major meanings, the first meaning reflects the absolute similarity which means this one is exact to that one, the second meaning .shows distinction that gets the concept of consistency continuity over the time. Thus, the concept of similarity can be obtained through two different angles simultaneously. (Jenkins, 2002:5)In term of the concept of identity abundance viewpoints are provided that focused on various components such as history, politics, economics etc.(La bell,1996; Byron,2000; Brown,2000; Tajfel,1978) Jones(1998) stated the identity as the sense of personal differential, a sense of personal continuity and independence Personal sense.

In sociological terms, term of identity means who is, and the need to identify themselves which incites series of cultural and historical elements in an individual or group of people. Each type of social involvement is a graph of the human features. These features introduced and facilitated understanding of human beings (Mojtahedzadeh, 1997:147). Personal identity is not a Static mode which delegated from social interactions nevertheless one should constantly create and support in everyday activities. (Giddens, 1999:81) Identity is shaped by the interaction between self and society, but the subject is still a core and essence of real one as a social construct. Identity is constructed and devised by human conditions. It is not a natural and pre-existing gift but always it should be made.

Thus the concept of personal identity is defined and identity itself is defined by factors such as the natural, social and psychological availability (Dowran, 2004). According to Mead development and identity formation is not possible outside a social environment (Kuzar, 1999:446) Finally, Mead believes, identity is affected by space, environment and social aspects and gets the complex nature which during the process of social changes it emerges and grows. By interacting with others we get new understanding of phenomenon and revise our behavior up to achieving the best condition. (Javadi, 2008:194).In addition to the internal and external aspect of identity, time and location are involved in the construction of identity in society. "Identify one thing means to put it at the right place in the right time" (Gol Mohammadi, 2002:46).





Masoumeh Seifi Divkolaii et al.

Each person's understanding of his own identity in an open confrontation with others and is made of Resemblance or Difference Perspective and without it we are unable to Identifying ourselves or our Action respectively. In other Phrase, the most striking Difference among Individual Identity and Collective Identity is that despite collective identity, Individual Identity upon differences, And Collective Identity emphasizes upon resemblance. People process what they get from community then accept it and internalize it. In both types, the identity has always been a means of communication in the sense that we are known by the similarities and differences we have with others. One can claim an identity just when is ensure of his/her continuity. This continuity is not something but stability of personality over time. Identity is based on the continuity and consistency of the personal behavior. Thus, while any individual and social identity needs individual continuity and this continuity cannot be sensed unless there is a significant past. From Personal perspective, "the past is the collective memory of history.

Social Identity

Social identity is the primary source of communication and interaction, and one of the main organizing framework for acting and manipulating in the interactive space. Social identity is kind of person or group's understanding of the relationship between the individual or group with others in the community that identifies the positions and features in comparison with others.(Turner,1999:34)Social identity is our understanding of who we are and who others are and what people understand of themselves. Then social identity is resulted of agreements and disagreements. Without framework for drawing up the social identity, I'd be like you and none of us can establish and sustain a meaningful relationship with others. (Jenkins, 1996:15)

In fact, a person in socialize process and communicate with the social or community group gets the most benefit and the most obvious singe is that the person refers his/her emotions to these community (Abdollahi,1996:142)

The essence of social identity is to establish friendship and emotional relationship, as the basis of any social order, even in modern society is affection and this matter rooted in emotional attachment in societies.

One thing that comes from the social identity matter is that identity constructing process provides the opportunity for an activist who focuses on fundamental questions of who and what and wants compelling answers. Indeed, identity, oriented to the recognition of the boundaries between "insiders" and "outsiders" which is mainly through social comparison and differentiation between the groups. The Importance of differences, conflict and tension in the group, even in the absence of the conflict of interest arises from the aspect of identity (Gol Mohammadi, 2002:224)

Dimensions of social identity

Social identity, seceded from Meaning constructing Sources such as Social, Household, Religion, Nationality, Race and Gender group. Social group refers to common Ethnic or group emission. Shared resources links all the people together with a common identity. With this definition, identity becomes a means of communication. This means that we are known by the similarities and differences which we have with others. These dimensions are as following:

1. Identity of the family, which is concerned to one of the most important reference groups that means parents and family. Personality Properties and Style Living of parents impact Upon Personal and Social Individual Identity and the body of the person's identity is formed in childhood and adolescence. Several Factors play an important role in Creating and Strengthening Identity such as Acceptability, Honoring, emotional exchange, consultation and dialogue with family members, especially parents (Sharafi, 2002:63).
2. Religious Identity which is applied as the relationship between Man and Religion And its Proportion. The corner stone of Religious Identity building is Commitment and Compliance (Sharafi, 2002:95). Religious Identity Indicates to



**Masoumeh Seifi Divkolaii et al.**

Feeling of possessing and commitment to religion and religious community. The most important Achievements of Religious Identity is Answering to the Stem Questions, giving Direction to Life, giving Unity to Belief And giving Meaning to Universe (Sharafi, 2002:99). 3. Ethnic Identity: There is no consensus in sociology about Reading and Analyzing of Related Issues to Ethnic Identity and Ethnic Groups. Based on Activism View there are Six Particularities about Ethnicity Included Blood Dependence and Race, Language, Land, Religion and common tradition (Sharafi, 2002:47). Until 1990s, three perspectives dominated in the category of "ethnicity": instrumentalism and ethnic symbolism. Immortality-oriented group stated that ethnic identity as a prior issue as a legacy to a man, according to them objective elements such as language, culture, religion, territory, common practices are effective in identifying individuals' identity. Instrumentalism stated an ethnic identity as instrument, subjective and artificial and according to them "cultural and ethnic identity is nothing but a feeling of affinity or similarity with a more or less imaginary congregation." On the Contrary the third group has not the views of ethnic symbolism and immortality-oriented. They quantified an innovative middle approach which has some aspects in common with the myths, memories and past roots as well the changes induced by modernity.

3. National Identity: Man alongside with his individual identity has collective identity that connects them to the larger group. This collective identity with the political life of man is harmonic. (Howard, 2000).

Structural identity Theory

White and other theorists suggest structural network to identity that is like economic theory in which behavior is considered to be largely a response to the environmental conditions. They suite people to set in good social positions while social constructionists asserted that position are devoted to specific identity and environmental factors in determining behavior and identity are significant, though the effect is the result of relationships that individuals and institutions are involved in, not directly or by natural stimuli. Identities structural theories emphasize the importance of understanding and predicting the behavior. By reposition of a man, the expectations of a person changes and one of our effective role is our close relationship with the network. (Rafat JA, 2004)

Social Separation Theory

Another theory put forward in the context of social identity theory is social isolation as alternatives to the identification of a particular social identity. This theory stipulates that adolescents in a particular situations. This theory asserted that social isolation or separation as a result of the lack of expressing oneself or lack of the sense of belonging to the community and situating the individual on the fringes of the society leading to feelings of lack of social identity and adolescent problem. In this case, teens for finding their identity and new position in society refer to their membership in the peer group. One of these kinds of peer groups in which teens gain their identity by joining is called Types Crowd. (Rafat JA, 2004)

Categorization theory

Categorization theory originates of psychological and social processes associated with the cohesion and cooperation foundation. The main hypothesis of Categorization theory is that social identities can often be an obstacle to orienting to distinguish social identity of the person (self-definition through membership in a social category) and personal identity (followed by their personal attitudes and ideas) has put forth a theory of social identity namely group behavior. People categorize themselves and others into social prominence stereotypes, which it adds to the conceptual identity between himself and the members of the group and adds a conceptual distinction between intra-group and out-group members. When the social identity of gets more attention than personal identity, people percept themselves in a way of similarities within the same group than the individual differences and this process itself is called as personification. Tajfel and others infer that categorization itself is sufficient to elicit certain



**Masoumeh Seifi Divkolaii et al.**

intergroup bias. (Gol Mohammadi, 2002:32) .identify social hierarchy may lead to a biased and the bias is significant in determining the variables that are important for social categorization (Gol Mohammadi, 2002:27) This means that when a person has achieved a kind of categorization and self-recognition within the group from outside the group, the group will have a positive assessment of the kind of bias, such sharing of resources, compared to other group. Its theory emphasizes the fact that the categorization process is dynamic and depends on the context in which set of relationships are given. In comparison with groups, within the groups have always greater differences than outer of the group. (Gol Mohammadi, 2002:34)

The social identity theory

Social identity theory was proposed in 1979 by Henry Tajfel and John Turner. Keywords for this theory includes the classification (categorization), the substantiation and comparison. So the theory is sometimes also called the CIC theory. This theory is formed to understand causes of psychological discrimination between groups. Tajfel and his colleagues attempted to determine the minimum conditions that cause members of a group benefit their own group's position when compared with other groups. Social identity theory emphasizes that membership in the group contributes to strengthening the character, the substantiation and development of a classification of an individual. Even the mere membership of a group leads to a situation in which members of the group take favor of which they are member in.

Tajfel in social identity theory considers a causal link between social identity needs with various forms of intergroup behavior. The social identity of an individual is reinforced by social comparing of difference between in-group and out-group thus common distinction even if with real conflict can be justified. In other words, we tend to emphasize on the similarities between categories and between categories within and outside the group, those who belong to the individual (within the group) is known and those that do not belong to it (inter group) also are distinguished (Tajfel, 1963).

Thus the social identity as well as the meaning is not inherent but it is the product of possessing or lack of concord therefore, we cannot have a stable identity, but our identity changes over time, however, identity is a continuous process which is produced and reproduced over time whereas it is meaningless far away of social world and its infrastructure namely society plays an important role in its production.(Jenkins,1996:87)Mead as the Richard Jenkins pioneer, considers distinction among "agent I" or individuality and "object I" was or social identity. Both "I" s form within the experiences and social activities. "I agent" represents the sensitivity of organs to somebody's face and "object I" organized collection of opinions of other people ostentatious. What is emphasized here is that "social objective I" is the result of a series of individual behaviors which is learned and shaped. And it is on the basis of the "social I" that crystallization of values, norms and morals that have been approved (Tavassoli, 1992:281).

Identity and gender

Among proposed theories in sociology two controversial ideas are seen. One class of sociologies believe that human identity is largely based on the inherent differences, so the main differences between men and women are innate (the gender differences).People like Parsons and Durkheim are among this group and believe that division of roles and business in the community has been largely on the natural basis . Parsons proposes that this division is on the basis of women's natural procreation biological role and this feature is created inherent to them in their caring role (Rafat JA, 2004:5). Jenkins (2002) argues that if identity is a prerequisite for social life, the reverse is also true. Individual identity distant from other's social world is meaningless. He believes that gender segregation is social construct, not a biological process. Concepts and Features of this isolation is different but is present in all human societies. Gender in Jenkins' view is a collective identity of the group or a category separated from group so has differences from the kinship or ethnic identity which by definition are main in group identification.



**Masoumeh Seifi Divkolaii et al.**

Women in the identification process, confluence of three factors .Three factors that have dialectic relationship with each other and cause to form female identity. Every factor has impact on the other. Any one of these three factors is inscribed in women's identification process.

Widespread presence of women in public life, customization and variety forms of marriage in Western societies, the erosion of the marriage position in its traditional form, replacing the roles assigned to women rather than acquired ones, changes in the cultural environment and reduction in the impact of marriage on the identification process are included in the impacts of role changing and globalization(Giddens,1999:56) as a result of these changes that have occurred globally and nationally, the role of women in family and employment agencies, had significant changes.

Virtual Social Network

Social media are macro concepts that are developed due to the emergence of new networks such as the Internet and mobile. Social medias provides the opportunity for people in which they have communications in the form of on-line exchanges, content of communications and thoughts therefor this type of media is different from the popular media since anyone in social media can create his/her own impression, leave a comment or add something new to it. Social media can be in the form of text, sound, image and communities. Social Network expression is sub-content of social Medias. Social networks due to the lack of location of the Internet have been built on individuals, interest of groups and public participation.

Social networks are in the space of virtual world in which the association between different people, with different levels of access is built. Establishing a mass or individual communication, forming a virtual communities, notification, exchanging of information and opinions are the best known functions of these spaces (Rafat JA, 2004:5).some of the social network features includes of sharing, organizing and mobilizing effect, friendship, trust, audience's rings, being multimedia, chat, prestige, open publishing, global Entertainment, democratic structure, power, social capital, social mobility and ingenuity. (Ziaee Parvar, 2009) Transformation of Communication (Qavanlou Ghajar, 2011), lack of control and censorship [30] and uncontrolled transnational border (Dorandish, 2011) awareness (Hatami, 2009) individual's participation in social networks increases of social interactions probability. One social network forms from representation of any person (often in a profile shape), and social links and variety of other services.

Facebook is one of the visual social network which is founded fourth in February 2004 by Mark Zuckerberg. In December 2006 Facebook has more than 12 million users, whereas users of this network in December 2009 got to 350 million and in early of 2012 its users soar to 900 million people around the world. (Facebook, 2011) Several studies show that the average daily users spend on Facebook changes from 10 to 60 minutes. (Joinson,2008; Lampe,2007; Muise,2009; Pempek,2009; Sheldon2008, Stern,2007),some analyzing for the relationship between gender and time of usage in Facebook show that women spend more time using their network(Muise,2009), some studies have shown a negative correlation between use of Facebook and the age of the users , the greater the age of the users of the network, spend less time in Facebook(Stern,2007; Kolek,2008) .Studies have shown that every Facebook user has an average of 150 to 300 friends on his/her list. (West, 2009; Christofides, 2009; Ellison, 2007) in terms of gender, women have many more friends than men. (Pempek, 2009) as well as the results of various studies show that most information of Facebook users is about themselves. (Ellison, 2007; Valenzuela, 2009) due to the elimination of the Facebook network location it emphasizes on common ground and common interests.

Identity and New Media

Media creates symbols of shared identity among people of different social networks and consequently, creates symbols which help us in defining other social networks. In other words, media prepares cultural, Ideas and beliefs



**Masoumeh Seifi Divkolaii et al.**

remodeling of the community they serve, and gives strength to them. (Khaniki, 1997:53) from this perspective, Medias do not change people's attitudes but effects on their knowledge.

With the development of mass media, especially electronic communication, interaction of personal development of identity and social systems as universal norms and standards are ever more apparent. (Giddens, 1999:20)

Constructed identities are constantly subject to re-perception through discourse deeds. Thus Medias in the social construction of identity including ethnic identity play a cultural role (Seyed Emami, 2008:126). The virtual space in the medias with their special feature enables many different selves provision to users, one or ones which can fully close to the real person or away from it . It is apparent that as much as the real and virtual user be closer and more similar, these two spaces more merge in everyday life activities, resulting in a greater influence on the user's identity and, consequently, way of life (Tajik, 2008:76). From point of View of ultra-modernists Like Firestone in the Process of Globalization, Cultures will become heterogeneous and diverse. Each of the postmodern media deprives identity from any sustainability identity and with any adaptive by acting against the dominant forms creates discordance and inversed discourse or anti-identity discourse and will be formed (McDonnell, 2003:154). Cybernetic technologies provide new images and ways out of themselves to get rid of confusing social restrictions. As a result, new links formed which are not in gender, class, sexual approach, ethnicity or location bound (Ward, 2008:173). new communication and information technologies by providing visibility of network community has not only given new identities to individuals and communities in the form of fresh, but Our behavior towards self, others and the world has changed. (Olson, 1998:5) new means of communication, especially the Internet, at least in the communities has original effects include: creating new value and a different social space, new values can have lasting effects on numerous identity. (Soltanifar, 2008:185)

Experts' view on the effects and consequences of the Internet in general and the specific effects on identity can be studied from three different perspectives: the First glance is known as determinism assumes Internet as an exterior concrete structure in which the subjectivity of people form and users put it in their domination and forced them to impose on its view. The second category is known as voluntarism which knows Internet as simply as a series of opportunities for individual empowerment for harvesting information and at last but not least pluralism which are known as intermediate approach, i.e. the same as the ontological they do not neglect the dimension of Internet technology , but they believe that this technology is not an ultimate determinant ,In other words, they have to consider the capacity and capabilities of the Internet besides users' freedom to act.

In traditional societies, culture itself can manage to create a particular identity since it has high capacity for signifying (Gol Mohammadi, 2002:239)

LITERATURE

According to the new concept of virtual social networks in recent years, enough researches have not been conducted on virtual social networks .The most recent researches on this subject in Iran are as follows:

A Research entitled as the causes of young Iranians inclination toward Facebook was conducted by doctor Ameli in 2010 using the qualitative method and in-depth interviews. Roya Hakimi (according to the Ameli) in a paper entitled as the role of social network on identity conducted a case study on the impact of the social network Facebook and its Kurdish users based on its impact on Kurdish culture and identity, and how Facebook makes sense of shared identity among Kurds people. The used theory in this paper, is Robertson's theory of global -local. The obtained results of this paper show that globalization for ethnics has the global-local definition and for Kurds it led to the formation of a virtual country in which they can have their own cultural and political sovereignty, so that the main role of Facebook was handling Kurdish representation in the world, and in this way helped them to find friends and like-minded



**Masoumeh Seifi Divkolaii et al.**

people around the world. In a study that Javadi and Mohammad Jalil Azizi conducted (1999), as a social and cultural identity among the youth of the city in Shiraz according to media agent, different theories of identity surveyed. The obtained Results indicated that in the social aspect about 92 percent and in the cultural aspect 75 percent of respondents has a high sense of identity relation in these two areas. Another research entitled as satellite TV and gender identity from young girls was conducted by Danesh .P (2006).In another study as investigation of the relationship between Internet use and religious identity of users conducted by M. Abbasi Ghadi Kola'ii (2007). The Results of research show that time variables For users of the internet, and active participation of users in using of Internet, consideration the site content as actual in the Internet, the socio-economic base of users and user's studies all show a significant relationship with religious identity. Whereas variable type of Internet use showed no significant relationship with the dependent variable.

The theoretical framework for this research come from the ideas of Richard Jenkins and Giddens. These two sophisticated man in the theory about personal identity and social have tried to analyze the identity and bridge between the gap of individual and society and defined the processes of identity identification and identity building in modern era by taking the reciprocal influence of individuals and social structure in account since it shapes the one's expectation and integrates it to itself [9:103]Fundamental hypothesis in symbolic interactionist means that people attach these symbols to objects and behaviors in themselves and others and these meanings are conveyed and developed through the interaction. People behave not based on tangible objects properties but based on the meanings that these objects have on them. Therefore, identities are shaped through interaction and develop via personal experience.

METHODS

This study was a survey and library method was used for the theoretical part of the research. The information was collected using a questionnaire. In this study, for measuring each man variables of the research, Likert-related scales were used. Variables were assessed via using face validity. Also, in order to assess reliability, A total of 20 questionnaires distributed and after collecting the reliability of the questionnaire by using Cronbach-test was calculated at the amount of 82% alpha ,this value is more than an acceptable α ($7 / . < \alpha$) And shows that the used questionnaire possessed of good validity and reliability. After collecting the survey data, SPSS software to analyze the findings of research has been used.

The population and sample size

The population of the study consisted of all female students with various levels of Imam Reza (P.B.U.H) in Mashhad in 1392 who are members of the social network Facebook, as most of the student in the society access the Internet cyber space consequently and their interaction is further. Via sampling Cochran formula, 195 members of the social network Facebook, and 195 people who were not members of the network, determined by the use of randomly selecting and examined.

Analysis of data

Analysis of the data regarding the use of virtual social networks and social identity (in terms of religious, ethnic, family and personal) shows that there is a significant relationship between the use of virtual social networks and social identity. The related question to this hypothesis was that whether the use of virtual social networks effects on social identity of women in Mashhad or not? The obtained results are as follows:



**Masoumeh Seifi Divkolaii et al.**

Test results of the comparison are presented in Table 1 show that the differences between the two groups is significant and this means that the use of virtual social networks effects on religious identity of Mashhadi girls and there is a significant difference between the ones who uses of the network with Those who do not.

The result of Comparison of Table 2. For the variable of ethnic identity, shows a significant difference between the two groups those who have the facilities with those who were deprived of. This means that ethnic identity of those who use social virtual network is weaker than those who do not.

The results indicated significant differences among users of the Social Virtual network with those who do not use of it. It means that in the first group the collaborative work is weaker and poorer than the second group.

The results indicate that in this area there are also significant differences between the two studied groups which means that the group who used Of Social virtual network possessed poorer self-confidence and weaker than the other groups and they are weaker in overall conception of their personal identity and their conception is more negative than the second group.

CONCLUSION

Information society causing widespread developments such as the evolution of the concept of time and space. Providing new sources and references subjected the identity and perception of people into changes. New communication technologies and the information highway, especially the Internet has led to sever changes in communication across the world and caused qualitative transformation in human beings' communication. Facebook, and in more macro level, social network, allowing people to move towards an identity that has historically been suppressed. Particularly in societies where women are neglected, this movement is faster. Therefore, women in Facebook attempt to representation and rebuilding their suppressed identity. (For example, the formation of groups advocating to women's character earns the chance to tell their history and identity). In recent years we have witnessed enormous growth of Internet usage in our country.

This paper analyzes the relationship between social and virtual networks with women's social identity. The result of the first test indicates that the differences between the two groups is significant and this means that the use of virtual social networks affected on religious identity of Mashhad girls and there is a significant differences between those who use the virtual network with those who do not. There is one likely thought that this relationship is probably for this reason that the use of such facilities in the young people will eventually prevail since their religious identity is weaker than other youth. Usually young people who use the virtual network spend less time with family and therefore their rational and emotional communication with family members and especially parents will decrease. Besides some parts of the site contents differ from parents' values and expectations of traditional generation as they want spiritual idealism, pluralism and respect for religious and moral order but the contents of the sites are vice versa. In fact, Virtual networks outspread generational gap between parents and children, especially given that in many cases Internet escalates the interest of promoting a consumption and demand-oriented culture and Western countries individualistic Results obtained from the fourth hypothesis shows the significant difference between the two groups means that the group who use of Social networks were weaker in terms of self-confidence than other groups and their whole notion about personal identity is weaker and more negative than other groups. A summary of the findings of this study have shown that the quantity and quality of relationships and social practices play an important role on the women usage from virtual network, and engagement in cyber space detached our women from their traditional identity. However, it seems that the network connection have been met a few more developments from quantitative way. The relationship between women and the world of culture in the context of social networking as users has changed, and women should be allowed to act in diversity of supply in the society.





Masoumeh Seifi Divkolaii et al.

Finally, it can be concluded that media organizations should increase the field for the Iranian audience through providing more media literacy and providing training packages for accurate information. According to Goffman people try to play the various roles in their lifetime to present the good image and valuable individuals' identity and they attempt to send various messages to achieve a good identity from others. The requisite of this re-description and receiving an identity is that we are aware of the identity infrastructure. When women get the realization of their gender-based classification, value and how to resist before them, that time they can play an active role and present better definition of the creation of best images out of themselves. According to obtained results and the impact of social networks on the social identity of women conducting more research about the effect of the device on the marital relationship can be considerable.

ACKNOWLEDGMENT

The authors appreciate the assistance of the individuals involved in the studies

REFERENCES

1. Abdollahi, M., 1996, Sociology Identity crisis: objective and subjective principles of collective identity and its impact on cultural exchange Dytamysm of the world, Nameh Pajohan, first, second and third numbers. (Persian, 1374)
2. Ameli, SR, 2010, the critical study of virtual colonization of America's soft power and virtual empire, Tehran: Amir (Persian, 1389)
3. Buckman, R. 2005. "Too much information? Colleges fear student postings on popular facebook site_could pose security risks". The Wall Street Journal, P. B1.
4. Byron, R., ۲۰۰۰, Identity, In Bernard, A., Spencer, J., op.cit.
5. Brown, R. ۱۹۹۶, Social Identity, In Kuper, A., Kuper, J., The Social Science Encyclopedia, London , Rotledge.
6. Burke, P. 2004, "Identities and Social Structure", Social psychology Quarterly, Vol.67:5 – 15
7. Christofides, E., Muise, A., & Desmarais, S. 2009. "Information disclosure & control on Facebook: Are they two sides of the same coin or two different processes?" *CyberPsychology & Behavior*, 12(3), 341-345.
8. Dowran, 2004, the family identity and interaction in space Cybernetics, Faculty of Literature and Humanities, Vol. XII, No. 44, S89-128
9. Dorandish, H., 2011, the role of the media in the Egyptian revolution, Diplomasi Irani. (Persian, 1390)
10. Ellison, N. B., Steinfield, C., & Lampe, C. 2007. "The benefits of Facebook "friends": Social capital college students' use of online social network sites". *Journal of Computer-mediated Communication*, 12. 1143 – 1168.
11. Facebook, 2011. Company timeline <<http://www.facebook.com>. (Persian, 1390)
12. Golder, S. A., Wilkinson, D., & Huberman, B. A. 2007. "Rhythms of social interaction: Messaging within a massive online network". In C. Steinfield, B. T. Pentland, M
13. Giddens, Anthony, 1999, modernity and identity (social and personal identity in the modern era) translated N. successful, Tehran: Nashreh Ney
14. Gol Mohammadi, A., 2002, globalization, culture and identity, Nashreh Ney. (Persian, 1381)
15. Hatami, M., 2009, with emphasis on the role of media in the Arab world of the Internet, *Journal of Political and International Studies*, University of shahreza, No. IV. (Persian, 1389)
16. Howard, Judith A. 2000, " Social psychology of identities" , *Annual Review of Sociology*, Vol .26 ,pp. 367-393
17. Jenkins, Richard ۱۹۹۶. Social Identity. London. Routledge.
18. Jenkins, Richard, 2002, Social identify, Translator: T. Yarahmadi, Tehran, publishing Shirazeh
19. Joinson, A. N. 2008. " 'Looking at', 'Looking up' or 'Keeping up with' people? Motives and uses offacebook". In *Proceedings of the 26th annual SIGCHI conference on human factors in computing systems* (pp. 1027–1036). New York: ACM.





Masoumeh Seifi Divkolaii et al.

20. Javadi, Y., M, Azizi, j., 2008, the social and cultural identity among young city, according to the media, Journal of Cultural Studies, 1 (3). (Persian, 1387)
21. Khaniki, H., 1997, mass culture and new media, the book Soroush (Proceedings; 2) Media and Culture, Tehran, Soroush. (Persian, 1374)
22. Kolek, E. A., & Saunders, D. 2008. "Online disclosure: An empirical examination of Undergraduate facebook profiles". NASPA Journal, 45(1), 1–25.
23. Kuzar, Louis, 1999, The Life and Thought of the Elders of Sociology, translated by M. Triad, Tehran :Elmi
24. Lampe, C., Ellison, N., & Steinfield, C. 2007. "A familiar face(book): Profile elements as signals in anonline social network". In Proceedings of the 26th annualSIGCHI conference on Human Factors in_computing systems (pp. 435–444). New York:ACM.
25. La bell, Thomas J., Ward, Christopher R., 1999. Ethnic Studies and Multiculturalism. NewYork. SUNY Press.
26. Mojtahedzadeh, P.1997, geography and politics in modern process, Journal of Law and Political Sciences, Volume -, 24-48.(Persian,1373)
27. Mohseni, M., 2001, Sociology Information Society, Tehran, Didar publishing, printing. (Persian, 1380)
28. Muise, A., Christofides, E., & Desmarais, S. 2009. "More information than you ever wanted: Doesfacebook bring out the green-eyed monster of jealousy?"CyberPsychology & Behavior, 12(4), 441–444.
29. McDonnell, Diane, 2003, Introduction to the Theory of Discourse, translated by H. Nozari, Tehran: Culture Forum
30. Olson, D., 1998, media and symbols, forms of expression, communication and education, translated by M. immigrants, Tehran, Soroush
31. Pempek, T. A., Yermolayeva, Y. A., & Calvert, S. 2009. "College students' social networking experiences on facebook". Journal of Applied Developmental Psychology, 30(3), 227–238.
32. Qavanlou Ghajar, M., 2011, a virtual social functions for students, case study on Facebook, cultural and media studies. (Persian, 1390)
33. Rafat Ja.M., 2004, Women and redefine social identity, doctoral dissertation in Sociology, Faculty of Social Sciences, Tehran University. (Persian, 1383)
34. Salehyar, GH, 1998, the era of mass media, Paster Mark, Tehran: Iran Institute. (Persian, 1377)
35. Sedaghati fard,M., Dadgar fard,Z., A Survey On Social Deprivation In IRAN And The Factors Affecting it , Journal of Behavioral sciences in Asia, Vol. 1(1) , February
36. Sharafi, M., 2002, Young and identity crisis, Third Edition, published by Soroush (Persian, 1381)
37. Stern, L. A., & Taylor, K. 2007. "Social networking on facebook". Journal of the Communication, Speech Theatre Association of North Dakota, 20, 9–20.
38. Soltanifar, M., 2008, The New Public Diplomacy and Public Affairs electronics, Tehran, Simayeh Shargh
39. Seyed Emami, K., 2008, the perception of ethnic groups from their media images, Journal of Cultural Studies, 1 (4). (Persian, 1387)
40. Sheldon, P. 2008. "The relationship between unwillingness-to-communicate and students' facebook us.e Journal of Media Psychology, 20(2), 67–75.
41. Tajfel,H.and Wilkes,A.L. 1963;Classification and quantitative judgment,British Journal of Psycholigy,54,101-114
42. Tavassoli, Gh.,A., 1992, Theories of Sociology, Tehran: the study and edited books Humanities University (Samt). (Persian, 1381)
43. Tajfel, H. 1978. Differentiation between Social Groups : Studies in the Social Psychology of Intergroup Relations. London.
44. Taheri.,M.,2013, The effect of new communication technologies on social isolation of children in families, Journal of Behavioral sciences in Asia, Vol. 1(1) , February
45. Turner, John C.1999, "Some Current Issues in Research on Social Identity and SelfCategorization",In Noam Ellmeres; Russell Spears;Bertjan Doosje(eds.)Social Identity:Context,Commitment,Content. London:BlackwellPublishers.
46. Turner, H. 1999. The Structure of Sociological Theory (6th edition).London: Wadsworth.





Masoumeh Seifi Divkolaii et al.

47. Tajik, MR, 2008, at the age of media and crisis Fravaqyt (with an emphasis on identity crisis), Journal of Political Science, 4 (1). (Persian, 131387)
48. Valenzuela, S., Park, N., & Kee, K. F. 2009. "Is there social capital in a socialnetwork site?: Facebook use and college students' life satisfaction, trust, and participation". Journal of Computer-Mediated Communication, 14(4), 875 - 901.
49. Ward, G., 2008, Postmodernism, translated to Fakhre ranjbari and Abouzar Karami, Tehran: Mahi
50. West, A., Lewis, J., & Currie, P. 2009." Students' facebook 'Friends': Public andprivate spheres". Journalof Youth Studies, 12(6), 615 - 627.
51. Ziaee Parvar., H., 2009, social networking features, standard magazine, No. 210. (Persian, 1389)
52. Zokaei, MS and Khatibi, F., 1996, the Internet and identity changes, research among young professional users, Communication and Cultural Studies Quarterly,No. (Persian, 1374)

Table 1: Test Comparison of religious identity in the two studied groups

The study group	Number	Mean	Standard deviation	The mean standard error	Significance level
use of virtual social networks	195	801/2	728/0	05215/0	001/0
Lack of the use of virtual social networks	195	599/2	539/0	0387/0	

Table 2: test comparison of the ethnic groups studied

The study group	Number	Mean	Standard deviation	The mean standard error	Significance level
Application Of Virtual Social Network	195	22.3	149/1	0821/0	005/0
Lack of Application Of Virtual Social network	195	47/3	466/0	0334/0	

Table 3: test comparison of the two studied groups in terms of their family identity

The study group	Number	Mean	Standard deviation	The mean standard error	Significance level
Application Of Network Of Social Virtual	195	714/2	747/0	0535/0	0.00,
Lack Application Of Network Of Social Virtual	195	017/3	543/0	0388/0	

Table 4:test comparison of personal identity in the two studied groups

The study group	Number	Mean	Standard deviation	The mean standard error	Significance level
Application of virtual Social network	195	755/2	789/0	565/0	0.000
Lack Of Virtual Social network Application	195	086/3	424/0	0304/0	





Investigating the Viewpoints of Employees Regarding the Role of Value Components on Reducing Job Stress in Isfahan Education Office, District 4

Seyed Mostafa Banitaba Jashveqani^{1*} and Ali Akbar Samei¹

¹Department of Educational Sciences, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran.

Received: 18 Jan 2015

Revised: 21 Feb 2015

Accepted: 19 Mar 2015

*Address for correspondence

Seyed Mostafa Banitaba Jashveqani
Department of Educational Sciences,
Isfahan (Khorasgan) Branch,
Islamic Azad University,
Isfahan, Iran.



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License** (CC BY-NC-ND 3.0) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

INTRODUCTION

It's a long time since human resource has found its important place in organizations. Skilled and efficient manpower is considered the most valuable wealth of each country. Despite the fact that many communities are rich in natural resources but due to the lack of competent human resources are not able to use this gift. But other nations despite being short on natural resources are living in welfare as a result of having competent manpower. The skilled manpower who has physical and mental health can improve the efficiency of an organization in which they are working. Attention of organizations to physical and mental health issues of human resources improves the quality and raises the efficiency. The mental health of human resource is a special debate, in fact the employees of any organization are the real asset of those organizations and their values are one of the most important fundamental resources of the company. Attention to the fundamental asset values of the organization guarantees the efficiency, growth, and survival of it, on the other hand, the troubled and anxious life of twenty-first century has made the mental stress an important topic in discussions of organizational behavior in the past decade. The biggest cause of work stress rotates on the fundamental changes that most organizations are facing with. Due to increasing competition the employees are asked to work more with better quality in shorter time and with fewer use of resources and that technology-based improvements has made it more difficult for employees to completely remove themselves from work and office. Calling devices, fax, e-mail, wireless phones and cellphones has easily taken their free time and peace at home or on leave and finally makes the dynamics of new life and the balance between work and home demands difficult. Unlike classical thinking that describes organization with traits such as discipline and



**Seyed Mostafa Banitaba Jashveqani and Ali Akbar Samei**

logic and systematicity, currently the organizational culture is consisted of the values, traditions and coordinator and controller behavior norms. Today the interaction of organizations with the society are much wider that the traditional pattern over several decades ago, so that organizations except from interactions with employees, shareholders, customers, etc. must respond to public opinion, communicative media, massive media, groups and different associations of society. In other words, the initial interactions create the secondary interactions which is a beginning for the organization to observe the value principles and respond to the demands beyond the initial relations.

In the study of organizational behavior the importance of the values is that they constitute the basis for understanding attitudes and motivation of individuals, they also influence their perception. People with a preconceived notion or with a view of dos and don'ts are employed in agencies. Obviously, these ideas are not without value. Instead they have interpretations of right and wrong and thus the values overshadow the logic and objectivity. Indeed values affect attitudes and behavior of employees (Robbins, 2009). Therefore understanding the values to percept social order and the rapid development of the communities is essential. On the other hand, we will be able to plan properly for the development community only with regard to the value priorities of the individuals of the society as active agents, (Sharifi, 2003).

The values like the golden rule make the human relationships musical (Najafipour, 2007). According to (Mussing, 2003) Internal organizational values are the most powerful tool in any organization, which include how to work, how to make decisions, the relationships between people and their behavioral expectations. In all affairs organizational values are in the first place in terms of importance. So it's essential to be well understood and explained. He believes that values are the act of picking and choosing human in different situations of life, besides he believes that values are basic orientation and deep desires which is sacred and respected to the human being.

The impact of values as part of the organizational culture on organizational members is to the extent that it can be assessed by examining the desired angles. Therefore it can be said that the value system is closely related to human relations and organizational behavior of employees and it determines the human relationships with each other in the organization and with the community at a large scale. Organizational values are like a glue that connects diverse groups to each other and creates homogeneity between them. Institutionalization of values in the organization is a way of improving the quality and quantity of employee's security services and attention to the dignity of them, fair compliance with laws and regulations, dynamism creation in the organization, recruitment and appointment of individuals without discrimination, etc. And when a person lacks appropriate values he or she feels a sense of alienation, and loses his sense of identity and importance. Without a strong value system it is difficult for a person to choose a course of action and way of life, and also a society that has a healthy context can be considered healthy and a healthy context is compatible with healthy people. Healthy people are those who understand the ethics and values and follow piety in their lives. Therefore a man with ethical traits and positive values seeks for treatment of mental and physical health and control of instincts, while he purifies himself, tries to complete himself and fight with the growth barriers and sickening factors whether inside or outside, the result of this fighting would be public health. Attention to the values and feeling of being valuable causes self-dignity of people, that is in fact a self-assessment that we as human beings do. This assessment is done based on the merit of success and being lovely. Having good feeling about self, reduced self-confusion and leads to personal growth and development, usefulness and creativity (Loker, 2006).

Stress and spirituality are two interlinked issues. Strong human spirit can be a vital asset for the elimination of barriers to relieve stress and achieve greater inner peace. Stress is a mental, physical, and chemical reaction in the body against events that cause fear, excitement, confusion and anger. Stress factors may be good or bad. Stress is a condition in which there is not a good relationship between the perception of the pressure circumstances and perception of the ability to fight. Stress is a little useful for it creates interest and motivation towards life (Peiffer, 2013). One type of stress that people experience is the job stress and adherence to the values will be able to reduce job stress. The Education Office is an institution that grows people. So the requirements for the survival and



**Seyed Mostafa Banitaba Jashveqani and Ali Akbar Samei**

sustainability of such institution with such daunting task, is the dominance of mental health, appropriate deal with different types of conflicts and adherence to management patterns of Islam. By following values as a component of Islamic management we can accomplish this goal.

Some people think that stress is something personal and is not related to their work. Some managers also think that in work crisis there's no time for being stressful or thinking about failures. Several studies are conducted in other countries that shows the negative role of stress in terms of commercial and economic outcomes (Cordon, 2011). Nowadays reducing stress to an acceptable level, choosing good stress and deleting bad stress that leads to recession, should be the main goal of the authorities, some institutions have this plan in their working schedule. Stress management in the center of every department means to give an assessment and recognition tool to each person so that they could keep fit. Teaching ways to people to cope with their own emotions better (Cordon, 2011). The stress level of an office equals the sum of employee's stress level. Renewing creativity, higher productivity, absenteeism and low job change, is the facade of an active company. When the rate of stress increases too much then the organization must cope with all its negative consequences, such as errors in judgment, low creativity and production, poor communication. The financial and human costs of such consequences is very high. So addressing the influencing factors in reducing stress, such as adherence to values is necessary, since it can reduce the effects of stress. This study sought to evaluate the role of value components in reducing job stress from the viewpoint of organizational employees and provide some guidelines

The research questions in this study are:

1. To what extent do religious practices play a role in reducing job stress?
2. To what extent do legal ways play a role in reducing the stress?
3. To what extent do ethical ways play a role to reduce stress?
4. To what extent do political methods play a role to reduce the stress?
5. To what extent do cultural practices play a role in reducing job stress?
6. To what extent do social methods play a role to reduce stress?
7. Is there any difference between the views of the respondents on the basis of demographic factors?

METHODOLOGY

The method used in this research is descriptive survey and its statistical population consists of all employees of Isfahan Education Office (50 subjects). Due to low number of population, census method was used. Data collection tool is a researcher made questionnaire with 91 items and is based on a five-point Likert scale. Both face and content validity of the questionnaire were confirmed by collecting the views of advisors and subject experts. Validity of the questionnaire was reported 0.91 using Cronbach's alpha coefficient that showed the high validity of the measurement instrument. SPSS software was used in both descriptive and inferential levels to analyze data. In the descriptive statistics, statistical characteristics such as frequency, percentage, mean and standard deviation and in inferential statistics, univariate t-test and manifold ANOVA were used

FINDINGS

In this section, analytical research findings are set based on research questions. For a simpler investigation, the findings of the six research questions are summarized in the form of a table.

First question: To what extent do six ways (religious, legal, ethical, political, cultural, social) play a role in reducing job stress?



**Seyed Mostafa Banitaba Jashveqani and Ali Akbar Samei**

According to findings of Table 1, the mean of the religious factor's role in reducing the amount of stress is 4.16, legal factors 4.29, ethical factors 4.19, political factors 4.19, cultural factors 4.19, and finally social factors' role in reducing stress is 4.5. Since the calculated t in each of the six components is larger than t of the table. Hence, the role of each of the six ways in reducing stress is higher than average.

The second question: Is there any difference between the views of the respondents on the basis of demographic factors?

The results listed in Table 2 shows that there is no significant difference between the scores of the factors affecting job stress reduction based on demographic factors.

DISCUSSION AND CONCLUSION

From the viewpoint of the whole employees all the 6-fold values played a role in the reduction of stress more than the average level. The results of the present study are consistent with the results of Nikoogoftar (2007) that found that in quantitative level, values can significantly predict anxiety, insomnia, depression and general health. The results are consistent with the research of Xie et al (2008) who concluded that there is a negative relationship between the commitment to values and job stress. Since traditional employees working in studied organizations have more commitment to values therefore they have less stress, this result was to somewhat consistent with the results of this study. The results of this study is consistent with the results of Leary (1987) and Atkins (1990) which in their research showed that there is an inverse relationship between time management of managers and employees and job stress. The results of the above study is in line with the results of Khalili (2007), which showed that there is a significant relationship between the consultative decision making with value, religious, political, social, artistic, and theoretical tendencies. And also it is consistent with participatory decision making with value, religious, political, social, artistic and theoretical tendencies in which there is significant relationship. Also the results of Lee (2001) showed that introduction to verbal culture, budget and resource financing, social values, demographic, political control, school type, balance in appropriate training by the school, verbal exchanges in the school, emotional effects, cognitive effects, age, marital status, religion, general experience of teaching, guidance status, rank in school and type of personality, have a significant relationship with teacher's stress which is consistent with the findings of this research. The results of the above research are in line with the results of Ghodsi (2007) who showed that spirituality, organizational commitment and job stress are significant predictors for job satisfaction also the level of job stress of consultants who work in an alien and close organizational climate is significantly higher than the rate of job stress of consultants that are working in open organizational climate. The results of this study suggest that the views of staff on the role of the components of value in reducing job stress and gender, work experience, discipline, and the difference is not significant. Mohammadi (2003) also showed in his study that there is no significant difference between the prevalence of stressing factors among male or female teachers, experience teachers and novice teachers and those teachers with a degree lower than bachelor's degree or higher degrees. In the case of religious values, commitment to God and its high mean in employee's perspective it can be said that in Islamic societies religious values have an important role in moods and emotions and performance of individuals. The faith and commitment to God has a special importance as a life giving source and the main cause of phenomena and human existence. Existence with all of its details have been established on fixed and balanced rules that are called Divine traditions. God is the creator of all life, and human is faced with the highest power in all circumstances. Obviously, among all other commitments of human, his commitment to God is the highest commitment and those who are committed to God have a feeling of success and victory in all circumstances because he believes that each of his behavior receives a response from God. Belief in the law of action and reaction makes people to be committed to the highest power even in the absence of power resources and as a result, feeling of creature-creation commitment provides the background for reduction of many of the mental conflicts and stresses. Having a clear work plan and performing in line with it is like having a map and as a result prevents confusion of employees and therefore leads to optimal fulfilment of duties. In most



**Seyed Mostafa Banitaba Jashveqani and Ali Akbar Samei**

organizations having a written work plan is considered as an obligation. By having a specific work plan people may not be confused, and on the other hand the appropriate and accurate evaluation of performance of employees is provided. Having a proper program in any organization can help managers and their success in the following described items.

1. Future opportunities are clearly defined and future problems are predicted and practical solutions to prevent those problems are determined.
2. Organization's overall performance is embodied
3. A clear vision about the relationship with the clients of the organization is provided.
4. A complete concept regarding job description within and outside organizational activities is provided
- 5-. Out of control factors are diagnosed and reasons for choosing the alternative program is offered.

In addition, planning can minimize the cost of organizational activities and provides a proper ground for maximum use of human and financial resources and prevention of the loss of resources. It is noteworthy that the political values are related to factors such as power, responsibility, influencing others and ownership and on the other hand the management of any organization has a direct relationship with the mentality and attitude of its managers, the more managers believe in collective performance, the more employees are participated in the affairs of the organization. On the contrary, individualism attitude of the managers leads to improper use of group participation in affairs and today it has been proven that the involvement of employees and division of labor between them increases efficiency and productivity of any organization as well as organizational attachment of the employees. Since the eighteenth century onwards, human societies have become aware of the division of labor. Since ancient times, many scholars were aware of the importance of this law. The division of labor nowadays is very common, and today's industry more than ever has a tendency towards powerful constructions, large classification of power and capital and finally maximum division of labor. Organizational culture affects the performance, conduct and behavior of employees. The agencies and organizations that have a cultural performance and their services is somehow related to educational cultures will have a high honor and esteem if they pay attention to values and perform based on virtues and excellence. Social values, include values that is general and is paid attention by the society. Our society is an Islamic society and with respect to the commands of God and verses and numerous narrations about feeling of responsibility towards others, we easily find that in Islamic-Iranian culture and in cultural environments, such as Education Office, respecting others even before their respecting ourselves and sense of responsibility towards others is of high value. It is suggested that we spread Islamic culture in the workplace and through various ways with divine teachings which includes introduction of appropriate books in this field and holding a variety of competitions about these books. Encouraging employees committed to Islamic principles at work, attention to staffing and personnel and selection of the proper people, dedication of some hours to perform the religious and Islamic ritual without spoiling the rights of the clients. Conducting training workshops and teamwork meetings to learn about organization's goals and collective working is recommended. It is recommended that to create and reinforce a positive attitude, we consider working variety and have employees to work in other posts and responsibilities after a while by using both internal and external motivational factors. Trusting the subordinates for responsibility and educating them should be set in the agenda and the promotion of employees should be done according to their level of ability. Strengthening the informal and healthy relationships and appropriate behavior with the upper class and subordinates, working environment clarification , providing a clear performance, educating honesty and integrity and avoiding defamation, as well as maintaining public property, educating the spirit of partnership, appropriate reward system, material and spiritual encouraging, and fostering a sense of trust in others is recommended.

REFERENCES

1. Atkins, Truman Turnage, (1990). The Relationship Among uses of time Management techniques source of stress in high school principals: Dissertation .Abstract: University of connecticut.





Seyed Mostafa Banitaba Jashveqani and Ali Akbar Samei

2. Cordon, L., 2011, bring stress to its knee, (Taleghani Salehi trans.), Talayeh Publication, Tehran. Loker,
3. T., Gregson, O. 2006, stress management self-learning, (Rezaei, M., Zhakan, M. trans.) Danzheh publication, Tehran.
4. Ghodsi, A., evaluation of organizational climate of school in job stress of consultants of high school in Tehran, consulting research (Research News and consultation, Volume 6, Number 23, fall 2007,25-40.
5. Khalili, A., 2007, the relationship between decision-making styles and value system of the middle school and high school principals of Abade county, MS thesis, Islamic Azad University, Khorasgan Branch
1. Leary, John Francis.(1987).Stress, time management and selected demographic factors of elementary school principals in Connecticut.Storrs, CT. : University of Connecticut.
2. Lee, LAI, Annisa.(2001). The Relationship between external environments and teacher, stress, The Chinese university of nongkong, DAL-A 62/09. P.2939 may 2002.
3. Mohammadi, M., 2003, occupational stressing factors of physical education teachers in Rasht, MA thesis in Physical Education and Sport Sciences, Allameh Tabatabai University.
4. Mussig, Dennis James .(2003). A research and skills training framework for values driven leadership. Journal of European Industrial Training.Vol. 27 Iss: 2/3/4, pp.73 – 79
5. Najafipour, F., 2007, a series of mental health books (2), Nasl No Andish Publication, Tehran.
6. Nikoogoftar, M. The relationship between the hierarchy of values and general health, Journal of Human Sciences, year 10, No. 1-2 (serial 19), Summer 2007
7. Peiffer, V., Naghibi Rad, M., Afrouz., A., 2013, stress and coping strategies, Eighth Edition, Tehran, Farhang Eslami Publication.
8. Robbins, S., 2009, organizational theory (structure, design, and applications), (Mehdi Lavani, Trans.), Hassan Danayifard, Saffar publications, Tehran.
9. Sharifi, M., 2003, studying the hierarchy of values of students and its effective social factors, MA Thesis, Faculty of Social and economic Science, University of Al-Zahra.
10. Xie, Jia Lin; Schaubroeck, John; Lam, Simon S. K. (2008). Theories of job stress and the role of traditional values:a longitudinal study in China. Journal of Applied Psychology, Vol 93(4), 831-848.

Table 1: Comparison of the mean of six ways in reducing stress with assumed mean 3

Component	Mean	Standard deviation	Deviation	T	DOF	Significance level
Religious factors	4/16	0/43	0/062	18/719	48	0/001
Legal factors	4/29	0/48	0/069	18/441	48	0/001
Ethical factors	4/19	0/54	0/078	15/261	48	0/001
Political factors	4/19	0/38	0/054	21/738	48	0/001
Cultural factors	4/19	0/49	0/071	16/752	48	0/001
Social factors	4/05	0/48	0/069	15/237	48	0/001

Table 2: multivariate analysis of variance of the rate of factors affecting job stress reduction with respect to demographic variables

Source	Total of squares	DOF	Mean square	F	Significant level
Gender	0/194	1	0/194	1/093	0/309
Level of education	0/211	3	0/070	0/396	0/757
Work experience	0/061	4	0/015	0/086	0/986
Age	0/737	3	0/146	1/386	0/277





Investigating the Effect of Innovation Trust and Job Autonomy on Innovative Work Behavior (IWB) of Staffs of Technical and Professional Administration of Tehran

Farideh Haghshenas Kashani^{1*} and Maryam Mansouri Filestan²

¹Assistance Professor, Management Faculty, Central-Tehran Branch, Islamic Azad University, Tehran, Iran.

²Graduate student management, Qazvin Branch, Islamic Azad University, Qazvin, Iran
Maryam_mansouri63@yahoo.com.

Received: 18 Jan 2015

Revised: 21 Feb 2015

Accepted: 19 Mar 2015

*Address for correspondence

Farideh Haghshenas Kashani

Assistance Professor, Management Faculty,
Central-Tehran Branch, Islamic Azad University,
Tehran, Iran.

E-mail: fahaghshenaskashani_93@yahoo.com



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License** (CC BY-NC-ND 3.0) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

The purpose of present study was to investigate the effect of innovation trust and job autonomy on innovative work behaviour (IWB) (creating idea, supporting idea, and performing idea) of Technical and Professional Administration of Tehran. This study is a descriptive-survey study in nature point of view and is an applicable study in goals point of view. The statistical population of the study was included the Schoolmasters, educators and experts of Technical and Professional Administration of Tehran in educational year of 2013-2014 that were 736 individuals. The sample volume was limited to 253 persons by sampling formula of population. The questionnaires of standard innovative behaviour (Caxter 1988), innovation trust (Ran Bested, 2013) and job autonomy (Jams Brat, 1999) were used to gathering data. Moreover , the stability values of these questionnaires were calculated and validated by Coronach Alfa coefficient and performing fisher test data analysis of questionnaires was performed in two parts of descriptive and deductive (Normality test of Kolomogrov - Smirnov and multi-variables regression tests correlation coefficient and Friedman test) by SPSS software. The results showed that the main Hypothesis i.e. innovation trust and job autonomy effect on innovative work behaviour (IWB). All of the subs – hypothesis of research were confirmed, except than the sub – hypothesis of 1-2 i.e. the effect of innovation trust on supporting the staffs' ideas.



**Farideh Haghshenas Kashani and Maryam Mansouri Filestan**

Key words: trust, organizational trust, innovation trust, job autonomy, innovation, organizational innovation and innovative work behaviour (IWB).

INTRODUCTION

Creating innovation, transferring innovation and idea changing are critical for organization which competes in diverse and non-finality environment to success and survival, the globalization process has led to increasing of competition on resources and markets. Organizations compete on hidden assets such as human resources (Farhaid, 2004). The competition on marketing has also been increased by providing productions with new quality (high performance). The individual innovation of staffs in work places is the main basis of performance promoting in any organization. Therefore, it is very important to conduct studies on motivations and the creative factors of innovation (Scott and Brous, 1994). The belief about the fact that trust is the main potential factor in work places and leads to organizational performance improving and can be one of the resources of competitive advantages has been firstly paid the attentions. Innovation trust means welcoming and accepting of innovation by all of the staffs of an organization. The main logic of innovation trust is the atmosphere of an organization which supports all staffs for presenting new recommendations due to the high welcoming of stuffs and encourages them to create new ideas (Clog et al, 2002; chandler et al, 2000).

Explaining the problem

In this research , we mostly has worked on individual aspects such as job autonomy , job independence and innovation trust which effect on creation of innovative work behaviours (IWB). Job autonomy supports staffs by giving necessary independency to them to show innovative behaviour (Sundbo, 2001; Alpkan et al, 2010). We have tried to describe an internal environment in which elbow-room exists to staffs and it created and supported by management and we showed that staffs will divulge innovative behaviour by dehiscence of above characteristics.

One of the characteristics and problems of almost all of offices and administrations, especially the technical and professional Administration of Tehran is lock of covering an internal environment by organizations, compare to other foreign organization such as in west or Japan in order to support the innovative behaviours. Since it is necessary for organization institutes and firms to make innovation and create changing and since organizations should be innovative to remained in competition , the importance of realizing an internal environment in which the management can rise job autonomy and innovation trust to create innovative behaviours is felt more and more.

It is expected that realizing the role of innovation trust and job autonomy for organizations which emphasis on knowledge, influence both of theoretical and management applications. According to what has been uttered, a comprehensive recognition from the effect of innovation trust and job autonomy on innovative work behaviour has a great value. Hence, the purpose of present study was to investigate the effect of innovation trust and job autonomy on innovative work behaviour. Although both of mentioned aspects are important, but a few studies has been performed in this field.

LITERATURE

Innovation trust

Innovation trust includes two parts: the heard trust and optimization trust. Previous findings have been provided by Axtell et al (2000). For example: personal and job variables predict idea creating, while organizational variables predict the operating based on ideas.





Farideh Haghshenas Kashani and Maryam Mansouri Filestan

The concept of trust has been used in various fields and areas like economy, sociology, management, social psychology and occupation psychology. However this structure is common nowadays, but it was recommended as an index for individual innovation in past and it investigate the role of trust in innovation process.

Trust is usually defined as positive expectations from the goals and behaviours of others in certain situation with admiring the possibility of vulnerability and it exist alongside some risks (Rousseau, Stikine, Burt & Camerer, 1998).

Begley and Pierce (1998) state that : ((it is tries that trust acted as a concept in order to affricate of existed insights but it leads to creation of concepts which are erratic complex or impossible for organizational research goals moreover , the endeavours are done to simulations development of different approaches , may cause to incorrect use of previous approaches. They discuss about a problem – based approach in which the elements of research area are innovative”).

Therefore, our definition about innovation trust is: ((expectation prediction of positive and logical reactions of others for response to one’s innovation)). Our logic is that people make innovation when they expect positive and logical response from others. Our thought relies on three main research areas:

At first, Eisenberger et al (1986) used a social interaction insight to pose that staffs have general beliefs about the value which organization give to their participation and quiet. They found that these beliefs have positive relationship with making opposite recommendations by stuffs (Eisenbereger, Facile& Davis – LaMastro, 1990).

Secondly, Siegel and Kemmerer investigated the atmosphere exist in innovate organizations and found an important factor called supporting creativity. Therefore, Anderson and west realized that the modified sample of this factor is innovation. Thirdly, Coach and Wall (1980), have had criterion about inter-individual trust in workplace which basically emphasis on trusting to ability and goals of others.

Innovation trust has a great role in innovation process. Therefore, we presented the hypothesis that people eager to participate in innovation process in a level that they know their beliefs and recommendations have been mentioned and know their advantages. Since the prerequisite of participating in innovation process is endeavour and risking , so it is unseen for people to participate in this process when they aren’t sure about their ideas to be mentioned our about their shares from advantages of their recommendation.

Job autonomy

Autonomy a complex concept which has multi folds dimensions and definitions (Morgan et al, 2002).

Whit a review of expert’s opinions, it was found that each of them has defined different characteristic about autonomy. Some of them, like Shibutani (1961) has emphasized on choice liberty of people (Lawson, Tony and Garrod, Joan, 1992). Some such as ((Razz)) emphasized on the choice ability of people (Razz, 1986). Another group have focus on self – conscious as basic characteristic of autonomy personality (King& Peter, 1960). Taylor has emphasized on developing self – conscious concept in the evaluation ability of person as a prerequisite condition of autonomy and finally a group of experts such as Chalbi, have emphasized on responsibility in defining personal autonomy (Chabi 1996, stated by ZanjaniZadeh, 2005).

Innovative behaviour

It is one of the main components of organizational innovation. As it stated before, organizations which are active in today changing competitive world, face with increasing demands for participating in innovative behaviours to create



**Farideh Haghshenas Kashani and Maryam Mansouri Filestan**

and transfer new products and achieve stable competitive advantages. To achieve this goal, organizations severely rely on their staffs to innovation (Ramamurthy et al, 2005). For example, Getz & Robinson showed that 80 percents of organizations ideas are created by staffs. However, innovation and creativity are rarely prescribed to staffs.

However, personal innovation and creativity can be useful to organization. Staffs generate, implement, react and modify the viewpoints by participating in innovative behaviours. Otherwise these viewpoints will not be created. This matter makes staffs participation necessary for innovation of products, processes and applicable methods in organizations (Ramamurthy et al, 2005). The positive relationship between personal innovation and organizational innovation has been also supported in literature. For example, Campel et al (1996) showed that there is a positive correlation between organizational performance and special innovative behaviours. However, the final result should be useful and effective for organization there is also the possibility that final result reads to failure or it leads to decreasing of competitive advantages (Campbell, 2000). In both of manners, the innovative goal of person is to benefit to the organization and staffs.

Innovative behaviour includes behaviours which have relationship with both stages of initiation and implementation. Personal innovation often begins with exploring an idea such as pursuing for production improving, pursue to improve the late services and processes or thinking about them with new methods.

Then, a new insight is created which means developing the concepts related to new products, services and processes, entering to new markets. These two behaviours can be related to initiation stage of creativity and innovation stage. Supporting from idea is the next stage. This stage is finding a support and creating a coalition of supporters to new idea. For example, new ideas can be supported by resources accoutrement, moving toward and negotiation with colleagues. After that, the idea is implemented. In this stage, new products, services and processes are created, examined and modified (De Jung, 2007, Zelman et al, 1973).

As it mentioned before, organizations with innovation ability can achieve to stable competitive advantages better than their competitors. It seems that personal innovation not only can improve the innovation of organization, but also it is important to achieve competitive advantage of organization.

Therefore, it is necessary for organizations to develop and abet the creating and innovation potential of staffs (Oldham & Comings, 1996; Amabile, 1988).

Main hypotheses

H1: innovation trust effect on innovative behaviours of staffs of Tehran technical and professional administration.

H2: job autonomy effect on innovative behaviours of staffs of Tehran Technical and Professional Administration.

Sub – Hypotheses

Sub – hypothesis of 1-1: innovation trust effect on idea generation of staffs of Tehran Technical and Professional Administration.

Sub – hypothesis of 1-2: innovation trust effects on idea supporting of staffs of Tehran Technical and Professional Administration.

Sub – hypothesis of 1-3: innovation trust effects on implementing the ideas of staffs of Tehran Technical and Professional Administration.

Sub – hypothesis of 2-1: job autonomy effects on idea generation of staffs of Tehran Technical and Professional Administration.





Farideh Haghshenas Kashani and Maryam Mansouri Filestan

Sub – hypothesis of 2-2: job autonomy effects on idea supporting of staffs of Tehran Technical and Professional Administration.

Sub – hypothesis of 2-3: job autonomy effects on implementing the ideas of staffs of Tehran Technical and Professional Administration.

Hypotheses validation

Since the questionnaires were Standard, the opinions of faculties and experts of Tehran Technical and Professional Administration were used to content validation.

Reliability

The Alfa – Cronbach coefficient was used to reliability and the results indicated the stability of questionnaires (according to below table).

The reliability of questionnaires also assessed through fisher Exact test. The reliability of the questionnaires resulted in 0.521080473, which was more than $\alpha=0/05$ and therefore the reliability of questionnaires was confirmed.

Testing the hypotheses of research

At first, the results of normality of data distribution have been explained by following table:

CONCLUSION

In this study, it was tried to investigate the effect of innovation trust and job autonomy on innovative work behaviours and its dimensions which include idea generation, idea supporting and idea implementation in Tehran Technical and professional Administration in the year of 2014. For this purpose, the data obtained from questionnaires were analyzed in order to investigate the effects of these factors. According to main hypotheses of 1 and 2, innovation trust and job autonomy effect on innovative work behaviour. AH of sub – hypotheses were confirmed except than sub – hypothesis of 1-2. This sub-hypothesis states that innovation trust doesn't have effect on idea supporting; this matter is due to the reason that idea supporting is done by management team and the level of trusting doesn't have any effect on it.

Recommendations

The recommendations were presented based on questions ranking table (Ranking Test of Friedman). In this way, the questions were prioritized based on their important and significantly level and with SPSS software and the recommendations were presented based on them:

Recommendations of main hypothesis of number 1:

Enhancing the feeling of celebrity and self – confident of staffs by holding training workshops and implementing rewarding system. Defining tools to determine the amount of produced profits by new idea and square allocation of gained profit to individuals who have had share in generation and implementation of the new idea by manager.

Culturing, it means that the culture is created in thinking and beliefs of staffs in which they quickly adapt with changing without any defiance or opposition. In the other words. It is necessary to generating creativity and innovation and acceptance of new ideas by staffs and their participation to idea implementation.

Management support from individuals who welcoming from innovation.





Farideh Haghshenas Kashani and Maryam Mansouri Filestan

The recommendations of the main hypothesis of number 2:
Providing the possibility of decision making to individuals by using pre-determined methods.
It is necessary for staffs to control the determination of their activities sequence.
The staffs to be allowed to decision – making.
The necessity of activities control is considered in job targets.

The reduction of job standard levels in a way that the staffs don't involve in doing a certain job and task under the framework of specified methods and be able to solve the problem in a creation manner and response to clients needs by this manner.

The recommendations of sub – hypothesis of 1-1:

To make proper culture among administration members based on the effect of innovation trust on idea implementation. It means that the culture is crated in thinking and beliefs of staffs in which they adapt with changing without any opposition. In the other word, it is necessary to create and improve the innovation and creativity in staffs and admiring new idea by staffs and their participation in idea implementation.

The recommendations of Sub – hypothesis of 2-1:

According to the effects of job autonomy on idea generation, the reduction of manager attention to inflexible framework and provisions in administrative part is useful to enhance the liberty and independence of staffs in work place to generate new ideas.

Recommendation based on the Sub – hypothesis of 2-2:

According to the effect of job autonomy on supporting from new idea , it is necessary to provide proper condition for using from staffs opinions by system such as cooperative management , recommendations system and soon.

The recommendation of Sub-hypothesis of 2-3:

According to the effect of job autonomy on idea implementation and since guiding, supporting and encouraging the individuals who generate new idea is one of the factors of developing and enhancing the ability of creativity and innovation in organizations, so it is recommended to create a square system of rewarding and encouraging creative people in organizations. By this way managers can show that the behaviour of creative staffs is valuable for them and they give reward to such staffs for their endeavours in organization , for time and energy they spend to achieving the goals of organization and for their innovation and creativity that they use to generate new methods and approaches. Moreover , it is recommended to create an evaluation system to identify the innovative people in order to monthly or annually evaluation of them and it is recommended to reduce the level of superintendence in order to support and encourage them and increasing their job autonomy as top persons of organizations

REFERENCES

1. Hafez Nia, M., 1998, Introduction to research in the humanities, the study and edited books Humanities University, Tehran, Samt
2. Khaki, G., 2005, research with an approach to the dissertation, Tehran, Baztab Publications
3. Delaware, Ali, 2001, the theoretical and practical research in the human sciences, Tehran, Roshd Publications





Farideh Haghshenas Kashani and Maryam Mansouri Filestan

4. Aghaie Fishani, Timur, creativity and innovation in people and organizations, 1998, First Edition, Tehran, Termeh Publications
5. Soltani Tiran, Flora, 1999, institutionalizing innovation in the organization, first edition, publishing expressive cultural services
6. Robbins, Stephen, Foundations of Organizational Behavior, 2006, translated by Ali Parsayan and Mohammad Arabi, Twelfth Edition, Tehran, published by the Center for Cultural Research Bureau
7. Molahoseyni, Ali, Barkhordar, Babak, the relationship between self-management skills and innovation of employees in organizations of Kerman, 2007, Journal of Humanities and Social Sciences "special management", No. 27, Winter 2007
8. Namy, Abdul Zahra, Afshari, a causal relationship between leadership style, leader-member interaction, the style of problem solving and team working relationships with innovative organizational atmosphere and employee innovative behavior, 2010, Psychological Research, Volume 13, Number 1
9. Hossein-Zadeh, David, Shoghi, B., relationship between intuitive problem solving techniques with innovative and entrepreneurial behavior (Case Study: Ranieri Company), 2011, The Fourth International Conference on Engineering and management of innovation, creativity, management of industrial organization, and Therese bionic
10. Mirzayi, MA, The relationship between organizational trust and innovation (case study: the company of refining and distribution of petroleum products, 2009, the Master of Public Administration Thesis orientation Human Resources, Tehran University campus Qom
11. Ali Akbar, Ahmadi, Mosleh, Abdul Majeed, Tajiks, M., 2011, the relationship between self- leadership skills and innovative behavior in the South Pars Gas Complex (Assaluyeh), National Conference of entrepreneurs, industry knowledge, Mazandaran University
12. Drucker, Peter, 2002, degree of innovation, translated by Doctor A. Rezaei-Nejad, journal excerpts Management, No. 22, and September 2002
13. Omid Company, 2005, Creativity and Innovation Management, Scientific Monthly, tact, No. 166
14. Agha Davood, Rasool, Hatami, Mahmoud Hakiminia, B, 1389, the effective factors on organizational innovation among managers, Social Science Journal of Islamic Azad University of valley, No XI, 170-127
15. Fazel, Amir, kamalian, Amin R., Blessed, G., F., A., The role of trust in organizational innovation: Research in an Iranian organization of services, 2011, Process Management and Development, No. 77
16. Mirzayi, MA, 2008, the organization and the development of trust between employees and management, strategy, first-year, second issue, winter 2008, 58-39
17. Shirazi, A., Khodaverdyan, inspiration, Naimi, M., 2012, the impact of organizational trust on organizational citizenship behavior (Case Study: North Khorasan Gas Company), Change Management Journal, 7 (scientific - research), spring and summer of 2012, pages 154-132
18. Hossein-Zadeh, Ali Shabani chelated, A., 2011, self-concepts, perspectives and consequences of organizational, management, devise, No. 228, May 2011, pages 51 -46
19. Ahmadi, Mehraban, M., 2003, the relationship based on trust and confidence of the entrepreneur, management, development management, No. 50, June and July 2003, pages 54-50
20. Khorshidi, S., Yazdani, HR, 2012, to study the relationship between trust, reciprocity and organizational sense making adjustments with regard to the effect of organizational commitment, management, change management Bulletin, No. 7, the spring and summer of 2012, pages 90-61
21. Jahangiri, D., 2013, confidence in the types of trust (individual and social), Management: Nakhli shahdad, Vol. VIII, No. 19, summer 2013, pages 122-95
22. Hassanpour, Amir, compare the relationship of two variables skills, autonomy (self-conscious choice) and quality of life (satisfaction, competence, independence and social integration) in the category of male students and students with normal hearing damage Help, MS Thesis, University of Allameh Tabatabai
23. Bayat, S., 2010, The relationship between basic needs (autonomy, competence and communication) and self-efficacy and motivation of staff job Alborz Steel, MS Thesis, University of Allameh Tabatabai





Farideh Haghshenas Kashani and Maryam Mansouri Filestan

24. Alborzi, SH, Alborz, M., 2006, The relationship of autonomy and quality of life in Talent students of Shiraz University, *Psychology* 39, the tenth year, No. 3, Fall 2006
25. Alpkan, L., Bulut, C., Gunday, G., Ulusoy, G. and Kilic, K. (2010), "Organizational support for intrapreneurship and its interaction with human capital to enhance innovative performance", *Management Decision*, Vol. 48 Nos 5-6, pp. 732-755
26. Amabile, T.M., Conti, R., Coon, H., Lazenby, J. and Herron, M. (1996), "Assessing the work environment for creativity", *The Academy of Management Journal*, Vol. 39 No. 5, pp. 1154-1184.
27. Brief, A.P. (1998), *Attitudes In and Around Organizations*, Sage Publications Inc, Thousand Oaks, CA
28. Burroughs, J.E., Dahl, D.W., Moreau, C.P., Chattopadhyay, A. and Gorn, G.J. (2011), "Facilitating and rewarding creativity during new product development", *Journal of Marketing*, Vol. 75 No. 4, pp 53-67
29. Chandler, G.N., Keller, C. and Lyon, D.W. (2000), "Unraveling the determinants and consequences of an innovation-supportive organizational culture", *Entrepreneurship Theory and Practice*, Vol. 25 No. 1, pp. 59-76.
30. Chen, Z.X. and Aryee, S. (2007), "Delegation and employee work outcomes: an examination of the cultural context of mediating processes in China", *Academy of Management Journal*, Vol. 50 No. 1, pp. 226-238
31. Clegg, C., Unsworth, K., Epitropaki, O. and Parker, G. (2002), "Implicating trust in the innovation process", *Journal of Occupational and Organizational Psychology*, Vol. 75 No. 4, pp. 409-422
32. Cowan, R., Sanditov, B. and Weehuizen, R. (2011), "Productivity effects of innovation, stress and social relations", *Journal of Economic Behavior & Organization*, Vol. 79 No. 3, pp. 165-182
33. Davis, M.A. (2009), "Understanding the relationship between mood and creativity: a metaanalysis", *Organizational Behavior and Human Decision Processes*, Vol. 108 No. 1, pp. 25-38..
34. Dobni, C.B. (2010), "The relationship between an innovation orientation and competitive strategy", *International Journal of Innovation Management*, Vol 14 No. 2, pp. 331-357
35. Dombrowski, C., Kim, J.Y., Desouza, K.C., Braganza, A., Papagari, S., Baloh, P. and Jha, S. (2007), "Elements of innovative cultures", *Knowledge and Process Management*, Vol. 14 No. 3, pp 190-202
36. Dorenbosch, L., Engen, M.L. and Verhagen, M. (2005), "On the job innovation: the impact of job design and human resource management through production ownership", *Creativity and Innovation Management*, Vol. 14 No. 2, pp. 129-141.
37. Eskildsen, J.K., Westlund, A.H. and Kristensen, K. (2004), "Measuring employee assets – the Nordic employee index", *Business Process Management Journal*, Vol. 10 No. 5, pp537-550
38. Grant, A.M. and Berry, J.W. (2011), "The necessity of others is the mother of invention: intrinsic and prosocial motivations, perspective taking, and creativity", *The Academy of Management Journal*, Vol. 54 No. 1, pp. 73-96.
39. Gumusluoglu, L. and Ilsev, A. (2009), "Transformational leadership and organizational innovation: the roles of internal and external support for innovation", *Journal of Product Innovation Management*, Vol. 26 No. 3, pp. 264-277.
40. Hennessey, B.A. and Amabile, T.M. (2010), "Creativity", *Annual Review of Psychology*, Vol. 61 No. 1, pp. 569-598.
41. Janssen, O. (2000), "Job demands, perceptions of effort-reward fairness and innovative work behaviour", *Journal of Occupational and Organizational Psychology*, Vol. 73 No. 3, pp. 287-302.
42. Janssen, O. (2003), "Innovative behaviour and job involvement at the price of conflict and less satisfactory relations with co-workers", *Journal of Occupational and Organizational Psychology*, Vol. 76 No. 3, pp 347-36
43. Janssen, O. (2004), "How fairness perceptions make innovative behavior more or less stressful", *Journal of Organizational Behavior*, Vol. 25 No. 2, pp. 201-215.
44. Langfred, C.W. (2004), "Too much of a good thing Negative effects of high trust and individual autonomy in self-managing teams", *The Academy of Management Journal*, Vol. 47 No. 3, pp 385-399
45. Lee, J. (2008), "Effects of leadership and leader-member exchange on innovativeness", *Journal of Managerial Psychology*, Vol. 23 No. 6, pp. 670-687
46. Martin, T.N., Price, J.L. and Mueller, C.W. (1981), "Job-performance and turnover", *Journal of Applied Psychology*, Vol. 66 No. 1, pp. 116-119





Farideh Haghshenas Kashani and Maryam Mansouri Filestan

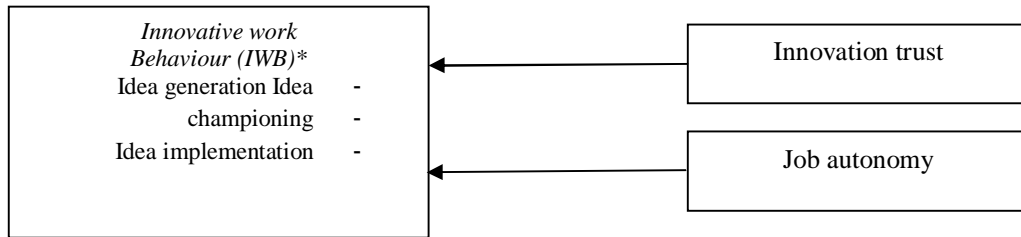
47. Miron, E., Erez, M. and Naveh, E. (2004), "Do personal characteristics and cultural values that promote innovation, quality, and efficiency compete or complement each other?", *Journal of Organizational Behavior*, Vol. 25 No. 2, pp. 175-199.
48. Ong, C.H., Wan, D. and Chng, S.H. (2003), "Factors affecting individual innovation: an examination within a Japanese subsidiary in Singapore", *Technovation*, Vol. 23 No. 7, pp. 617-631.
49. Pieterse, A.N., Van Knippenberg, D., Schippers, M. and Stam, D. (2010), "Transformational and transactional leadership and innovative behavior: the moderating role of psychological empowerment", *Journal of Organizational Behavior*, Vol. 31 No. 4, pp. 609-623.
50. Scott, S.G. and Bruce, R.A. (1994), "Determinants of innovative behavior: a path model of individual innovation in the workplace", *The Academy of Management Journal*, Vol. 37 No. 3, pp. 580-607
51. Shalley, C.E., Gilson, L.L. and Blum, T.C. (2000), "Matching creativity requirements and the work environment: effects on satisfaction and intentions to leave", *Academy of Management Journal*, Vol. 43 No. 2, pp. 215-223.
52. Shih, H.A. and Susanto, E. (2011), "Is innovative behavior really good for the firm? Innovative work behavior, conflict with coworkers and turnover intention: moderating roles of perceived distributive fairness", *International Journal of Conflict Management*, Vol. 22 No. 2, pp. 111-130.
53. Shipton, H.J., West, M.A., Parkes, C.L., Dawson, J.F. and Patterson, M.G. (2006), "When promoting positive feelings pays: aggregate job satisfaction, work design features, and innovation in manufacturing organizations", *European Journal of Work and Organizational Psychology*, Vol. 15 No. 4, pp. 404-430.
54. Siguaw, J.A., Simpson, P.M. and Enz, A.C. (2006), "Conceptualizing innovation orientation: a framework for study and integration of innovation research", *Journal of Product Innovation Management*, Vol. 23 No. 6, pp. 556-574.
55. Spreitzer, G.M. (1995), "Psychological empowerment in the workplace – dimensions, measurement, and validation", *Academy of Management Journal*, Vol. 38 No. 5, pp. 1442-1465.
56. Sundbo, J. (2001), *The Strategic Management of Innovation*, Elgar, Cheltenham. Tabachnick, B.G. and Fidell, L.S. (2007), *Using Multivariate Statistics*, 5th ed., Pearson International Edition, Boston, MA.
57. Tierney, P. (1997), "The influence of cognitive climate on job satisfaction and creative efficacy", *Journal of Social Behavior and Personality*, Vol. 12 No. 4, pp. 831-847.
58. Unsworth, K.L. and Clegg, C.W. (2010), "Why do employees undertake creative action?", *Journal of Occupational and Organizational Psychology*, Vol. 83 No. 1, pp. 77-99.
59. Vermeulen, P. and Dankbaar, B. (2002), "The organisation of product innovation in the financial sector", *Service Industries Journal*, Vol. 22 No. 3, pp. 77-98.
60. Yuan, F.R. and Woodman, R.W. (2010), "Innovative behavior in the workplace: the role of performance and image outcome expectations", *Academy of Management Journal*, Vol. 53 No. 2, pp. 323-342.
61. Zhang, X. and Bartol, K.M. (2010), "Linking empowering leadership and employee creativity: the influence of psychological empowerment, intrinsic motivation, and creative process engagement", *The Academy of Management Journal*, Vol. 53 No. 1, pp. 107-128
62. Åmo, B.W. (2005). Employee innovative behavior. PhD Serie Bodø Graduate School of Business, Handelshøgskolen i Bodø
63. Åmo, B.W. & Kolvereid, L. (2005). Organizational strategy, individual personality and innovation behavior. *Journal of Enterprising Culture*, 13(1), 7-20.
64. De Jong, J. (2007). Individual innovation: The connection between leadership and employees' innovative work behavior. PhD University of Twente, EIM: Zoetermeer.
65. T.Oukes(2010)."Innovative work behavior:A case study at a tire manufacturer"Bachelor thesis Business Administration University of Twente.
66. Rune Bysted(2013). "Innovative employee behaviour:The moderating effects of mental involvementand job satisfaction on contextual variables"School of Economics and Management, Aarhus University, Aarhus, Denmark. *European Journal of Innovation Management*, Vol. 16 No. 3, pp. 268-284.
67. Susanti Saragih (2011)."The Effects of Job Autonomy on Work Outcomes:Self Efficacy as an Intervening Variable",*Universitas Kristen Maranatha,Bandung-Indonesia*,Vol.4 No.3,pp.203-215.





Farideh Haghshenas Kashani and Maryam Mansouri Filestan

68. J.de Jonge (1995). "Job Autonomy, Well-being, and Health: A study among Dutch health care workers".
69. S. M. M. Raza Naqvi, Maria Ishtiaq, Nousheen Kanwal & Mohsin Ali (2013), "Impact of Job Autonomy on Organizational Commitment and Job Satisfaction: The Moderating Role of Organizational Culture in Fast Food Sector of Pakistan", International Journal of Business and Management; Vol. 8, No. 17.



Figure(1): The model of research, (Rune Bysted ,2013) *- (kanter .1988)

Table(1) the results of Alfa – Coronach coefficient

The questionnaire	Count	Coronach- Alfa	Results
Innovation trust	4	0.753	It is stable
Job autonomy	10	0.945	It is stable
Innovative behaviour	11	0.840	It is stable

Table(2) One-Sample Kolmogorov-Smirnov Test

Variable	Kolmogorov-Smirnov Z	Significant level(Sig)	Probability level(a)	N	Result
Innovation trust	1/804	0/003	0/05	253	Not normally distributed
Job autonomy	1/315	0/063	0/05	253	Normal distribution
<i>Innovative work behaviour(IWB)</i>	1/289	0/072	0/05	253	Normal distribution
Idea generation	1/683	0/007	0/05	253	Not normally distributed
Idea championing	2/203	0/000	0/05	253	Not normally distributed
Idea implementation	2/421	0/000	0/05	253	Not normally distributed





Farideh Haghshenas Kashani and Maryam Mansouri Filestan

Table(3): The results of Hypotheses of research were investigated by Komologrov – Smirnov test

The number of Hypothesis	The level of error (α)probability	Significantly level (sig)	Beta	Result
1-innovation trust effect on innovative behaviours of staffs of Tehran technical and professional administration.	0/05	0/010	-	The hypothesis is confirmed
1-1- innovation trust effect on idea generation of staffs of Tehran Technical and Professional Administration	0/05	0/000	-	The hypothesis is confirmed
1-2- innovation trust effects on idea supporting of staffs of Tehran Technical and Professional Administration	0/05	0/076	-	The hypothesis is rejected
1-3- innovation trust effects on implementing the ideas of staffs of Tehran Technical and Professional Administration	0/05	0/039	-	The hypothesis is confirmed
2- job autonomy effect on innovative behaviours of staffs of Tehran Technical and Professional Administration	0/05	0/000	0/527	The hypothesis is confirmed
2-1- job autonomy effects on idea generation of staffs of Tehran Technical and Professional Administration	0/05	0/000	-	The hypothesis is confirmed
2-2- job autonomy effects on idea supporting of staffs of Tehran Technical and Professional Administration	0/05	0/000	-	The hypothesis is confirmed
2-3- job autonomy effects on implementing the ideas of staffs of Tehran Technical and Professional Administration	0/05	0/000	-	The hypothesis is confirmed





Farideh Haghshenas Kashani and Maryam Mansouri Filestan

Table(4): comparing the results of present research with the results of previous researches

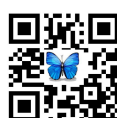
The name of researcher	Subject	Year	Results
Clegg, C., Unsworth, K., Epitropaki, O. and Parker, G	Implicating trust in the innovation process	2002	The different dimensions of innovation trust effect on different dimensions of innovative behaviour
Rune Bysted	Innovative employee behaviour	2013	innovation trust and job autonomy effect on innovative behaviour
Scott, S.G. and Bruce, R.A	Determinants of innovative behaviour: a path model of individual innovation in the workplace	1994	Similar results
Åmo, B.W. & Kolvereid, L	Organizational strategy, individual personality and innovation behaviour	2005	Similar results

Table(5): Prioritizing the questions of questionnaire of innovative behavior by utilizing from Friedman Test

The dimensions of innovative behaviour	Mean Rank
Idea generation	2.11
Idea supporting	1.94
Idea implementation	1.95

Table(6): Prioritizing the questions of job autonomy questionnaire by utilizing from Friedman Test

priority	Ranking average	job autonomy questions (James Breugh-1999)	Question number
3	5.98	Am I allowed to decide how I do my work?	12
1	6.41	Am I allowed to decide do my work by which method? (the possibility of using different pre-determined methods)	13
5	5.77	Can I choose my way out freely?	14
8	5.23	Do I have full authority to plan my task	15
2	6.31	Do I have control on sequencing my work and decide to do	16





Farideh Haghshenas Kashani and Maryam Mansouri Filestan

		which work I do when?	
6	5.53	Is it so that I can decide when to do certain activities?	17
10	3.75	Am I able to change what has become of my career goals?	18
4	5.86	How much control I have on what should I do? (the thing that that my head is considered as career goals)	19
9	4.69	Is start and completion of the work on my own responsibility?	20
7	5.46	Am I allowed to schedule all activities?	21

Table(7): Prioritizing the questions of innovation trust questionnaire by utilizing from Friedman Test

Priority	Ranking average	Innovation trust questions Rune Bysted(2013)	The number of question
3	2.24	I am sure that my colleagues welcome my new ideas.	22
4	2.13	I am sure that my colleagues listen to my ideas and opinions.	23
1	3.04	I am respectful to my colleagues.	24
2	2.58	I think that I benefit from presenting a good idea for the first time to my colleagues.	25





RESEARCH ARTICLE

Relationship between Organizational Structure and Knowledge Management Implementation in Sport Organization of Tehran Municipality

Azadeh Sadat Moghadamnia^{1*}, Dr.Mehrzaad Hamidi² and Dr. Saieed Amirnejad³

¹Department of Physical Education and Sports Sciences, Shomal University, Amol, Iran.

²Department of Physical Education and Sports Sciences, Tehran University, Tehran, Iran.

³Department of Physical Education and Sports Sciences, Kharazmi University, Tehran, Iran.

Received: 18 Jan 2015

Revised: 21 Feb 2015

Accepted: 19 Mar 2015

*Address for correspondence

Azadeh Sadat Moghadamnia
Department of Sport Science
Shomal University
Tehran, Iran
E-mail: a.s.moghadamnia@gmail.com.



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License** (CC BY-NC-ND 3.0) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

The aim of present study is to investigate the relationship between organizational structure and knowledge management implementation in the sport organization of Tehran Municipality. This research is descriptive and correlation. The population consisted of managers and experts within the sport organization of Tehran Municipality. The sample size was determined using Cochran's formula 134 and finally 120 questionnaires was returned correctly and were assessed. To gather data, knowledge management questionnaire based on Newman and Conrad (1999) and organizational structure questionnaire of Robbins were used. The validity of the questionnaire was approved by 10 experts in sports management and reliability through Cronbach's alpha coefficient for knowledge management 0.89 and organizational structure 0.74. Data analysis using descriptive statistics, Pearson and Spearman correlation coefficients were analyzed (k-s). The findings shows that the organizational structure and knowledge management in the sport organization of Tehran municipality, is a higher level than the average and there is significant relationship between organizational structure and knowledge management implementation in the sport organization of Tehran Municipality ($r=0.424$). Important suggestions of this research are reducing complexity, formalization and centralization of the organization because of the significant negative correlation between these factors and knowledge management implementation in the sport organization of Tehran Municipality. This can be with reducing the hierarchy in the organization and job titles in order to reduce complexity, reducing job descriptions



**Azadeh Sadat Moghadamnia et al.**

codified and consolidated in order to reduce the formalization and attract employee participation and give them sufficient authority for decision making in order to reducing centralization.

Key words: Knowledge Management, Organizational Structure, Complexity, formalization, centralization.

INTRODUCTION

Today, knowledge is a key to the competitiveness of organizations. Modern organizations are based on knowledge, and this means that they must design as the way, that can identify their organizational knowledge, store them and use them when it's necessary and also identifies their knowledge needs and use information and knowledge in the best way. The combination with these factors has established a new paradigm in the field of management, which is known as knowledge management (Akhavan and Bagheri, 2013).

Knowledge Management (KM) consists of the systematic processes for acquiring, organizing, sustaining, applying, sharing, and renewing all forms of knowledge, to enhance the organizational performance and create value (Evans et al, 2014).

Knowledge management recognized in a way to control and direct tangible and especially intangible, Knowledge assets to the organization, So that by the application of knowledge within and outside the organization, facilitate knowledge creation, value creation, innovation and improvements throughout the organization (Wunram, 2000). Knowledge management is the way an organization identifies and leverages knowledge in order to be competitive. It is the art of creating value by using organizational intellectual capital, which is what the organization (or, more exactly, the people within the organization) knows (Aziri et al, 2013). Knowledge management is a conscious effort to get the right knowledge to the right people at the right time so that it can be shared and put into action (Mathis and Jackson, 2011).

Today's organizations are operating in an environment where knowledge is power. As organizations vie for a competitive advantage, knowledge management has become a key element worthy of significant consideration (Steiger and et al, 2014). There is a general acceptance that sustainable competitive advantage in the 21st century will be accomplished through Knowledge Management (Halawi et al, 2005).

Organizational structure refers to the outcome of the combination of all the ways in that work can be divided into various tasks, the coordination of which must subsequently be ensured (Al-hakim and Hassan, 2011). Organizational structure, not only acts as a channel for the flow of knowledge, but it can also provide a platform for change and improvement in this process. Organizations, in order to manage knowledge effectively, should have an appropriate structure (Amousa and et al, 2014). The extent of centralization, formalization, how the flow of information between departments, Situation of confidential documents of organization and ... are important structural factors that their status directly effect on the creation, transmission, storage and use of knowledge (Monavariyan and et al, 2011).

In recognition of the relationship between organizational structure and knowledge management implementation, Razaghi and et al (2013) research shows that organizational structure is one of the effective factors in successful implementation of knowledge management in sports organizations. In Neysi and et al (2010) and Hasanali (2002) researches; also organizational structure was one of the effective factors in implementation of knowledge management.





Azadeh Sadat Moghadamnia et al.

Rahman Seresht and et al (2011), Abo torabi (2008), Seyed Amery (2008), Amousa (2014), Chen and Huang (2007) research results show that there is significant relationship between organizational structure and knowledge management. But in Nekodari and Yaghobi (2011) research this relationship was not significant.

This study wants to answer the following questions:

Is there a significant relationship between organizational structure and knowledge management implementation in sport organization of Tehran municipality?

Is there a significant relationship between Complexity and knowledge management implementation in sport organization of Tehran municipality?

Is there a significant relationship between Formalization and knowledge management implementation in sport organization of Tehran municipality?

Is there a significant relationship between Centralization and knowledge management implementation in sport organization of Tehran municipality?

Is there a significant relationship between Organizational Structure and Knowledge Creation in sport organization of Tehran municipality?

Is there a significant relationship between Organizational Structure and Knowledge Sharing in sport organization of Tehran municipality?

Is there a significant relationship between Organizational Structure and Knowledge Application in sport organization of Tehran municipality?

Is there a significant relationship between Organizational Structure and Knowledge Storage in sport organization of Tehran municipality?

MATERIALS AND METHODS

This research's method is descriptive and correlation. Population of research was consisted of managers and experts of sport organization of Tehran municipality and regions Expert (N=206). Sample was determined 134 by using Cochran's formula. 120 questionnaires were returned properly and were analyzed (n=120). To collect data, questionnaires knowledge management based on Newman and Conrad (1999) and organizational structure Robbins were used. Organizational structure questionnaire, consists of three components, Complexity, Formalization and Centralization and Knowledge Management questionnaire consists of four components, knowledge creation, knowledge sharing, knowledge application and knowledge storage. In addition, the validity of the questionnaire is confirmed in Salehi (2012), Hemati (2010) and Omidi (2007) researches, 10 professors and specialists in sports management confirm the validity of them. The reliability of the questionnaire was determined by using Cronbach's alpha coefficient for Knowledge Management 0.89 and for Organizational Structure 0.74. SPSS software was used for data analysis; descriptive statistics such as mean, frequency tables, graphs and inferential statistics, including Kolmogorov-Smirnov test (K-S), Pearson and Spearman's correlation coefficient were applied.





Azadeh Sadat Moghadamnia et al.

RESULTS AND DISCUSSION

According to the table1 of the frequency of gender, 61.7% were males and 38.3% were females. 59.2% of undergraduate education, 21.7% of master's and doctoral degree, 19.2% had a Postgraduate Diploma and Diploma respectively. 54.2% in physical education and 45.8% in other disciplines have studied. Average score of knowledge management implementation is 48.76 (The maximum score is 80) and Average score of organizational structure is 37.75 (The maximum score is 60) that States Situation of knowledge management implementation and organizational structure is located at a higher level than the average. The results associated in the research question using the Pearson and spearman's correlation test. The results show that:

There is a significant positive relationship between organizational structure and knowledge management in 99% of significance level and correlation value of 0.424;

There is a significant negative relationship between Complexity and knowledge management in 99% of significance level and correlation value of -0.285;

There is a significant negative relationship between Formalization and knowledge management in 99% of significance level and correlation value of - 0.364;

There is a significant negative relationship between Centralization and knowledge management in 99% of significance level and correlation value of - 0.289;

There is a significant negative relationship between Organizational Structure and Knowledge Creation in 99% of significance level and correlation value of 0.379;

There is a significant negative relationship between Organizational Structure and Knowledge Sharing in 99% of significance level and correlation value of 0.355;

There is a significant negative relationship between Organizational Structure and Knowledge Application in 99% of significance level and correlation value of- 0.325;

There is a significant negative relationship between Organizational Structure and Knowledge Storage in 95% of significance level and correlation value of 0.192;

CONCLUSION

This research has been conducted in order to investigate the relationship between organizational structure and knowledge management implementation in the sport organization of Tehran Municipality. The result indicates that the organizational structure and knowledge management in the sport organization of Tehran Municipality, is a higher level than the average and there is significant relationship between organizational structure and knowledge management implementation in the sport organization of Tehran Municipality. These results are consistent with Findings of Razaghi and et al (2013), Rahman Seresht and et al (2011), Neysi and colleague (2010), Abo torabi (2008), Seyed ameri and et al (2008), Amousa (2014), Hasanali (2002), but isn't consistent with Nekodari and Yaghobi (2011) findings. Research findings showed that organizational structure has an important role in knowledge management implementation in sport organization of Tehran municipality. Therefore, the following issues are recommended to managers:





Azadeh Sadat Moghadamnia et al.

It is recommended that manager believes on the critical role of knowledge management in the organization and organizational success and in key and vital issues of organization and decision making use of knowledge management. Furthermore, provide requirements for Employee participation in decision-making So that Elites are always ready to listen to Opinions and new ways of subordinates and encouraged them to express their ideas.

In view of the significant negative relationship between the component of the complexity of the organizational structure and the establishment of knowledge management, reduction of hierarchy in the organization and job titles would be appropriate.

In view of the significant negative relationship between the component recognition of the organizational structure and the establishment of knowledge management, should reduce the amount of recognition organizations which in different ways such as reducing job descriptions codified and consolidated, redundant and cumbersome standards and ... is possible.

In view of the significant negative relationship between the component centralization of the organizational structure and the establishment of knowledge management, in order to reduce centralization in organization, this can be effective that attract the participation of employees and give them enough authority to take important decisions.

REFERENCES

1. Akhavan, P., and Bagheri, R (2013) Knowledge management From Idea to Execution, Ati Negar Publication, Fifth Edition.
2. Evans, M., Dalkir, K., and Bidian, C. (2014). "A Holistic View of the Knowledge Life Cycle: The Knowledge Management Cycle (KMC) Model." *Electronic Journal of Knowledge Management* Vol 12 No 2,85-97.
3. Wunram, M.(2000). Concepts of the CORMA knowledge management model, Available www.corma.net.
4. Aziri, B., Veseli, N., and Ibraimi, S. (2013) "Human Resources and Knowledge Management", *Active Citizenship by Knowledge Management & Innovation: Proceedings of the Management, Knowledge and Learning, International Conference Zadar, Croatia*.
5. Mathis, R., and Jackson, J (2011). *Human resource management: Essential perspectives*, Cengage Learning available at www.books.google.com.
6. Steiger, J. S., Hammou, K. A., and Galib, M.H. (2014). "An Examination of the Influence of Organizational Structure Types and Management Levels on Knowledge Management Practices in Organizations." *International Journal of Business and Management* 9 (6), PP. 43.
7. Halawi, L., Aronson, J., and McCarthy, R.(2005). "Resource-Based View of Knowledge Management for Competitive Advantage." *The electronic journal of knowledge management*, 3 (2), PP. 75-86.
8. AL-Hakim, L.A.Y., and Shahizan, H. (2011) "The relationships among critical success factors of knowledge management, innovation and organizational performance: A conceptual framework." 2011 International Conference on Management and Artificial Intelligence
9. Amousa, F., Rostami, A., and Nilipour Tabatabaie, A. (2014). "The Role of Organizational Structure as one of the Main Factors of Knowledge Management (A Case Study: Agricultural Organization of Qazvin)." *Omega Journal of Scientific*. available at <http://www.sciomega.com/>.
10. Monavariyan, A., Kherandish, M., and Asgari, N. (2011) Development of the organization structure Dimensions , in proportion to the knowledge management approach, *Journal of Information Technology Management*, 3(7), PP.133-150.
11. Razaghi M., Moosavi S., Safania A., and Dousti M.(2013) Presentation of a Suitable Model for Knowledge Management Establishment in Sport Organizations: Delphi Classic Method. *Ann. Appl. Sport Sci.* 1 (2), PP.33-41





Azadeh Sadat Moghadamnia et al.

12. Neysi, A., and Rangbari kheyni, M. (2010) Study the factors influencing the successful deployment of knowledge management (Case study: Province Organization of Khuzestan), Cheshmandaz Modiriyat Journal 9(33) PP. 125-142.
13. Hasanali, F.(2002), "Critical success factors of knowledge management", available at: www.kmadvantage.com/docs/km_articles/Critical_Success_Factors_of_KM.pdf
14. Rahman Seresht., H, Radmard, S., and Gelvani, M. (2011) Relationship between organizational structure and Knowledge Management, management of organizational culture Journal, 9(23) PP. 31-50.
15. Abo torabi, M. (2008) Relationship between organizational structure and Knowledge Management , Staff managers of Physical Education Organization of Iran. Thesis, Tehran University, Iran.
16. Seyed Ameri, M.H., Arze, K., and Moharamzadeh, M. (2008) Relationship between Organizational factors (Structure and Technology) of Physical Education Organization of Iran with knowledge management strategy. Research in Sport Science Journal. 5(20) PP. 157-172.
17. Chen, C. J., and Huang, J. W.(2011) "How organizational climate and structure affect knowledge management- The social interaction perspective," International Journal of Information Management, 27(2), pp. 104-118.
18. Nekodari, M., and Yaghobi, N. (2011) Study of facilitating factors of knowledge management in Crisis Management Organization of Iran, General Management research Journal. 4(13) PP.95-119.
19. Salehi, D .(2012) Comparison of knowledge management in government and non-government bank city of Baneh. Thesis, Payame Noor University of Baneh, Iran.
20. Hemati, M .(2010) evaluation the application of Elements of Knowledge Management in Tehran technical college campus, the first national conference of Knowledge Management. Tehran.
21. Omid, A .(2007) The relationship between organizational structure and creative of managers of Physical Education Organization. Thesis, Tehran University, Iran.

Table 1: Prevalence by Gender

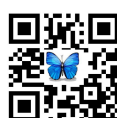
Gender	Number	Percentage
Male	74	%61.7
Female	46	%38.3
Total	120	%100

Table 2: Cronbach’s alpha for research questionnaires

Questionnaire	Number of Questions	Cronbach’s alpha
Knowledge management	16	0.89
Organizational structure	12	0.74

Table 3: Correlation between Organizational Structure and Knowledge Management

Independent Variable	Dependent variable	R	Sig
Organizational Structure	Knowledge Management	0.424	0.000





Azadeh Sadat Moghadamnia et al.

Table 4: Correlation between Organizational Structure factors and Knowledge Management

Independent Variable	Dependent variable	R	Sig
Complexity	Knowledge Management	- 0.285	0.002
Formalization	Knowledge Management	- 0.364	0.000
Centralization	Knowledge Management	- 0.289	0.001

Table 5: Correlation between Organizational Structure and Knowledge Management factors

Independent Variable	Dependent variable	R	Sig
Organizational Structure	Knowledge Creation	0.379**	0.000
Organizational Structure	Knowledge Sharing	0.355**	0.000
Organizational Structure	Knowledge Application	0.325**	0.006
Organizational Structure	Knowledge Storage	0.192*	0.036

** Significant at P<0.01 level

* Significant at P<0.05 level





Identification of Cultural Index Iying in Evaluation of Readiness of Governmental Agencies to Enter the Modern Areas of Business

Vahid Reza Mirabi¹, Ali Omid² and Vahid Naderi Darshoori³

¹Faculty member at the Islamic Azad University of Central Tehran; vrmirabi@yahoo.com

²PhD Student of Business Management, Islamic Azad University International Branch of Qeshm and marketing expert of maskan bank (bank maskan of Iran); Aliomidi121@gmail.com

³Master of Information Technology Management, Islamic Azad University, North Tehran Branch, Club of Young Researchers and Scholars, Tehran, Iran; v.naderi2013@mokhaberat-uast.ir .

Received: 18 Jan 2015

Revised: 21 Feb 2015

Accepted: 19 Mar 2015

*Address for correspondence

Vahid Reza Mirabi

Faculty member at the Islamic Azad University of Central Tehran

E-mail: vrmirabi@yahoo.com.



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License (CC BY-NC-ND 3.0)** which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

One of the early stages for entering any new area such as modern business area is evaluation of the readiness of the agencies to enter it; during which the organizational readiness is reviewed in terms of structural, management, technical and cultural dimensions and so on and the probable problems of entering it are recognized. Among the most important factors, which have a determinative role as strategic factors in evaluation of the readiness of governmental agencies to enter this area, awareness of senior managers and management of created organizational changes is through entering this area which is one of the most important indexes of cultural factors of any agency. This research is applicable in terms of purpose and descriptive in terms of method; it has started by selecting the recommended indexes and axes (through library studies, experts' opinions and studies on the implemented samples) and after providing questionnaire and sending it to the required sample population and analyzing the recursive questionnaire, recommended indexes and axes were statistically confirmed. The results of the done attempts of it is determination of the effective and key index in evaluating the readiness of the agency called insight and introduction of the preparation projects of governmental agencies to enter the modern business areas.

Key words: Insight, Index, Evaluation, Readiness, Governmental Agencies, Modern Business





Vahid Reza Mirabi et al.

INTRODUCTION

Evaluating the readiness of the agency is a method which is reviewed by exploiting various dimensions of the agency and readiness of each of the components of the agency is measured for accepting the project. The importance of this evaluation is to the extent that provides a proper conditions for the success of its implementation of that project in some agencies and lack of the evaluation of this readiness in agencies reinforce the probability of failure of the implementation of that project. Thus, doing the studies of evaluation of readiness is crucially important before entering the unpredictable area of modern business and it is considered as a key factor of the success of its implementation. In this respect, determining the role of the indexes of awareness of senior managers and change management is one of the most basic preliminary attempts for determining the criteria of measuring the success of this evaluation so we would measure the readiness of the agency by specifying and using these indexes and by recognizing the weaknesses and strengths, we would present plans of preparation in the respect of fixing the problems.

RESEARCH LITERATURE

Necessity and importance of the research

According to the done studies, 60-90% of the failures of the projects implemented in agencies have been due to the resistance of users against the made changes (Zare, 2009) and that is why it has been attempted to prevent the improvement of projects. The projects might be implemented successfully from the technical dimension but the evolution of this success depends on the users' tendency to accept this project. Agency's readiness before its implementation has an active role in reduction of resistance against these changes (Amid and Rezaeeyan, 2009); in fact it indirectly affects the probable behavior of the user in the respect of accepting this project. Since entering the area of modern business is one of the most important projects that shall be implemented in governmental agencies so that loss of organizational valuable sources would be prevented by presenting the indexes of awareness of senior managers and change management and we would protect the agency against probable difficulties of implementation so that we would give a valuable assessment to the managers in entering the turbulent area of business (Zare, 2009).

Research purposes

Reviewing the role of indexes of awareness of senior management and change management in evaluation of organizational readiness from the perspective of structural, management, technical and cultural dimensions and so on.

Identifying plans of preparing the agency for establishing the projects.

Readiness evaluation history

The readiness of various projects has been evaluated; projects of information technology are the most important projects among these. The key indexes have been evaluated in all of these projects. We can refer to the following patterns as the most important patterns of this type (Roohani and Hanafi Zadeh, 2009).

Model of Razmi et al (Jalali, 2009)

Model of Best (Liang, 2008)

Model of De Sosia and Nanakra (Cristina, 2010)

ANP method for preparing the agency (Manuel, 2010)



**Vahid Reza Mirabi et al.**

Readiness model by TAM & TPB (Hakim, 2010)
7s model (Morton, 2008)
Research method

The method of doing the project and how it is done are indicative of the totality of the research and the ultimate framework is obtained from the result of factor analysis done on the questionnaire which includes informative items according to table 1.

Presentation of the recommended pattern

The presented indexes have been obtained through library studies and opinions of experts, specialist and comparative studies. The preliminary framework of the mentioned indexes in the respect of evaluating the readiness of governmental agencies to enter the modern area of business has been recommended in the form of graph 1. DATA ANALYSIS

Analysis of strategic axis (indexes of awareness of managers and change management)

Twelve indexes of the required axis in the recommended table below have been presented in table 1 by describing and mentioning the associated codes (Mansoori, 2007).

Review of reliability of indexes

As we know, the Cronbach alpha is one of the criteria for evaluating the liability of a research and in this index, the rate of Cronbach alpha was equal to 0.927 (table 2) which is indicative of a high reliability (December, 2006). management

Scree Plot graph

In the Scree Plot graph (graph), the recommended 12 indexes have been presented for extracting the number of primary and ultimate components of this index. The number of the extracted variables (larger than 1) is equal to 3 components (Mansoori, 2007). Component rotation matrix

According to table 3, it is seen that any of the recommended indexes and axes have 5 proper total loads after 5 rotations, then variables are arranged with the rate of factor total loads larger than 0.6 in three categories of primary indexes as follows (it is obvious that factors MT7, AF1 and AF will be removed) (December, 2006).

By considering the mentioned tests, the ultimate framework of the presented indexes have been provided in table 4As it is seen, an index called employees' approach was added to the evaluated indexes and this means that in preparation of governmental agencies in terms of indexes of awareness of senior managers and changing management, the role of employees' approach is an undeniable role. In this respect, we mention some plans for preparation of governmental agencies. By considering the studies and experiences of the experiences, these plans include the items below.

Plans of preparation of managers and persons in cultural discussions

Managers reinforce their commitment for implementing great projects and support it;
Managers completely and accurately monitor the executive efforts by holding regular meetings;





Vahid Reza Mirabi et al.

Making culture in the regard of tolerating difficulty and conflict of employees (Amid and Rezaeeyan, 2009);
 Creating the spirit of cooperation and support;
 Development of the spirit of learning and expansion;
 Promotion of systematic approach and view in terms of experts and managers;
 Sharing knowledge in the agency with colleagues (Afraym, 2007).

CONCLUSION

In order to solving and repairing the probable challenges of entering the area of modern business in the agency, we shall know which were the fields with flaw and we shall attempt to solve them. Thus, the indexes and axes of evaluation of preparation of governmental agencies to enter the modern business area can be used in solving the problems of implementation of this project in the agency with the help of managers in strategic programming of the future status of the agency and organizational readiness in terms of structural, management, human, technical, infrastructural and cultural dimensions and so on. In this respect, by evaluating the indexes of awareness of senior managers and changing management, we concluded that in determining the role of these indexes in evaluating the governmental agencies, an index called employees' approach has an undeniable impact and we shall reinforce this cultural index for entering the area of modern business and this matter is made possible by implementing the plans of preparation mentioned above and a large step will be taken in the respect of efficiency and successful implementation of entering the area of modern business at the level of agency.

REFERENCES

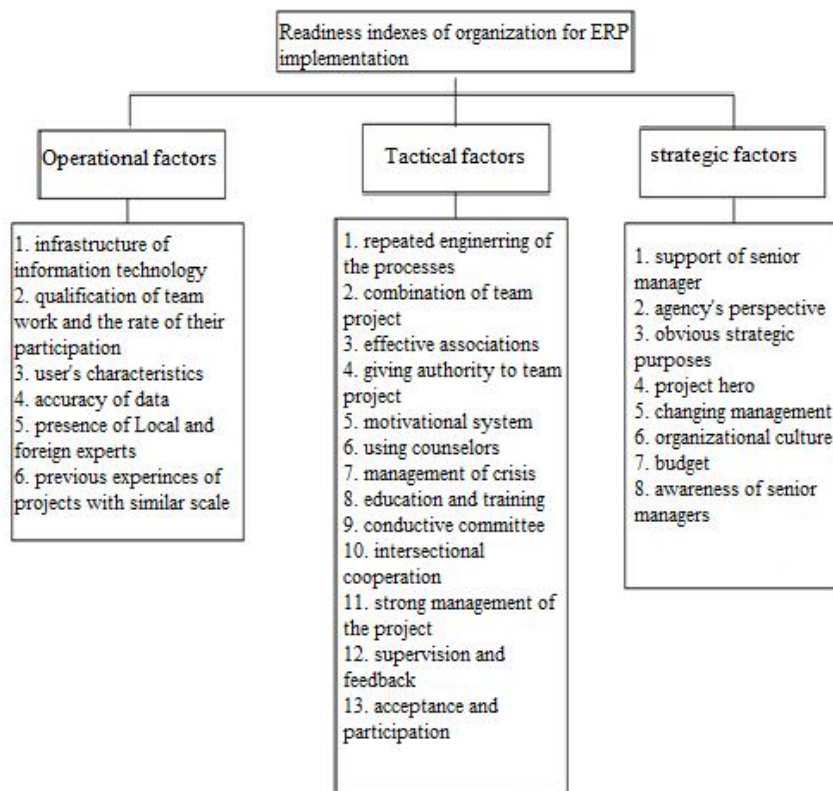
1. Kalantari, Khalil; Processing and analyzing data in social and economic researches, Tehran – Sharif publication, 2003
2. Mansoori, Momen; analysis of statistical data by using SPSS, Tehran – "Ketab-e No" publication, 2007
3. Azar, Adel; statistics and its application in management (statistical analysis), Samt, second, fall of 2006
4. Toorban, Afraym; information technology in management, Dr. Hamid Reza Riyahi, Payam-e Nour, May of 2007
5. Sharifi, Kioomars; designing the model of electronic puberty of the process of exportation of goods in Iran, master's thesis, Tehran University, faculty of human sciences and literature, 2002
6. Jalali, Ali Akbar; the role of social networks in development of ERP applications, second conference on ERP implementation experiences, November of 2009
7. Amid, Amin, Rezaeian – ali; review of the impact of culture on the success of implementation of programming systems of the sources of the agency, second conference of programming systems of the sources of the agency, 26th and 27th of January, 2009
8. Roohani, Saeed, Hanafi Zadeh, Payam; evaluation of preparation of the establishment of programming systems of the sources of the agency based on Mcanzie 7s model, second conference of programming systems of the sources of the agency, 26th and 27th of January, 2009
9. Zare, Ahad, evaluation of preparation of the establishment of programming systems of the sources of the agency based on Mcanzie 7s model, second conference of programming systems of the sources of the agency, 26th and 27th of January, 2009
10. Liang.C.W, Chornng.S.O, Yao.W.H(2008). Active ERP implementation management: A Real Options perspective. The Journal of Systems and Software 81. 1039–1050
11. Jose L, Salmeron, Cristina.L(2010). A multicriteria approach for risks assessment in ERP maintenance. The Journal of Systems and Software 83. 1941–1953
12. Lluís Santamaría.S, Manuel.N, Susana.G.R(2010). The role played by interdependences in ERP implementations: An empirical analysis of critical factors that minimize elapsed time. Information & Management 47. 87–95





Vahid Reza Mirabi et al.

13. Hakim.A,Hakim.h, (2010) A practical model on controlling the ERP implementation risks. Information Systems 35. 204–214
14. Neil A. Morton, Qing Hu(2008). Implications of the fit between organizational structure and ERP: A structural contingency theory perspective. International Journal of Information Management 28. 391–402
15. Yang.J.B, Wu.C.T, Tsai.C.H (2007). Selection of an ERP system for a construction firm in Taiwan: A case study. Automation in Construction 16 787–796
16. Razmi.J, Sangari.M.S, Ghodsi.R (2009). Developing a practical framework for ERP readiness assessment using fuzzy analytic network process. Advances in Engineering Software.

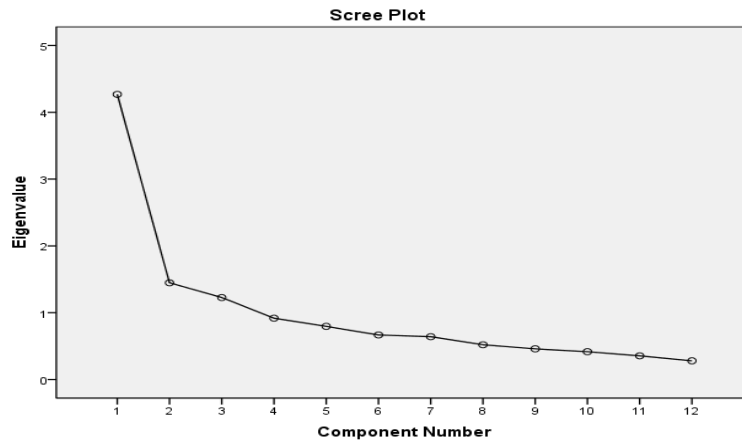


Graph 1: recommended indexes and axes for evaluation of agency's readiness





Vahid Reza Mirabi et al.



Graph 2: Scree Plot graph for indexes of awareness of senior managers and changing management

Rotated Component Matrix^a

	Component		
	1	2	3
MT1	.713	.203	.112
MT2	.740	.003	.096
MT3	.720	-.006	.088
MT4	.761	.045	.268
MT5	.701	.421	.073
MT6	.428	.603	.089
MT7	-.124	-.707	-.073
AF1	.175	.267	.304
AF2	.369	.302	.655
AF3	-.094	-.157	.802
AF4	.384	.292	.678
AF5	.139	-.809	-.071

a. Rotation converged in 5 iterations.

Table 1 – research method (Kalantari, 2003)

Row	Components	Explanation
1	Type of research	Applicable in terms of purpose and descriptive-analectic in terms of method
2	Statistical population	Governmental agencies (case study of the Education Center of Telecommunication)
3	Determination of sample volume	By considering the assumptions of the statistical model (factor rotation)
4	Sampling method	Stratified random
5	Measurement tools	A questionnaire with 2 axes and 28 indexes in the form of 124 questions for 120 persons
6	Liability and validity	For liability the Cronbach alpha method and validity of the questionnaire through 5 experts of the field





Vahid Reza Mirabi et al.

Table 2: preliminary and recommended table of indexes of awareness of senior managers and changing management

axis	Primary index	Secondary index	Code
Strategic	Awareness of senior managers	1- Senior managers are aware of projects' capabilities and limitations.	AF1
		2- Senior managers are aware of the fundamental changes caused by the implementation of the projects.	AF2
		3- Senior managers are aware of the purposes of the projects, required human force, etc.	AF3
		4- Senior managers consider projects as a package for doing the organizational processes better.	AF4
		5- Unawareness of the senior managers is effective as an obstacle on the direction of unsuccessfulness of implementation of the projects.	AF5
	Change management	1- The agency is committed to change has an open view about change.	MT1
		2- Manager is ready to make complex and fundamental changes for implementing the projects.	MT2
		3- The agency uses changing management tools such as leadership, involving employees, educating employees and programming and using encouraging systems at the time of creating the changes.	MT3
		4- Agency is committed by creating some group works for creating consistent changes and improvements.	MT4
		5- Agency uses the presence of experts and counselors of organizational changing management.	MT5
		6- The agency uses strategies of changing management of employees' approach, such as talking with employees in their own language and explaining about the reason behind changes and spending more time with them.	MT6
		7- Not using changing management can become an obstacle on the way of implementation of project in the agency.	MT7

Table 3: review of reliability of the indexes of awareness of senior managers and changing

Reliability Statistics

Cronbach's	
Alpha	N of Items
.927	129





Vahid Reza Mirabi et al.

Table 4: primary and ultimate table of indexes of awareness of senior managers and changing management

axis	Primary index	Secondary index	Code	component
Strategic	Awareness of senior managers	1- Senior managers are aware of the fundamental changes caused by the implementation of the projects.	AF2	Component 3
		2- Manager is ready to make complex and fundamental changes for implementing the projects.	AF3	
		3- Senior managers consider projects as a package for doing the organizational processes better.	AF4	
	Change management	8- The agency is committed to change has an open view about change.	MT1	Component 1
		9- Manager is ready to make complex and fundamental changes for implementing the projects.	MT2	
		10- The agency uses changing management tools such as leadership, involving employees, educating employees and programming and using encouraging systems at the time of creating the changes.	MT3	
		11- Agency is committed by creating some group works for creating consistent changes and improvements.	MT4	
		12- Agency uses the presence of experts and counselors of organizational changing management.	MT5	
	Employees' approach	13- The agency uses strategies of changing management of employees' approach, such as talking with employees in their own language and explaining about the reason behind changes and spending more time with them.	MT6	Component 2





RESEARCH ARTICLE

Relationship between Organizational Commitment and efficiency of employees in municipality of North Khorasan

Seyed Ahmad Akbarpour¹ and Zahra Noori Tupkanloo^{2*}

¹. Department of Business Management, Neyshabur Branch, Islamic Azad University, Neyshabur, Iran

². Phd Student of Agricultural Economics And Member's Of Scientific Boards of Department of Agriculture, College of Agriculture Neyshabur Branch, Islamic Azad University, Neyshabur Iran. .

Received: 18 Jan 2015

Revised: 21 Feb 2015

Accepted: 19 Mar 2015

*Address for correspondence

Zahra Noori Tupkanloo
Phd Student of Agricultural Economics
Member's Of Scientific Boards of Department of Agriculture,
College of Agriculture Neyshabur Branch,
Islamic Azad University,
Neyshabur, Iran.
E-mail: Zahra.noori.2007@gmail.com.



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License** (CC BY-NC-ND 3.0) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

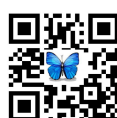
ABSTRACT

This study aimed to discuss the relationship between organizational commitment and efficiency of employees in municipality of North Khorasan. Based on the results, the findings are as follows: (1) Results of hypothesis show that significant relationship exists between organizational commitment and job performance. (2) Significant relationship exists between emotional commitment and efficiency. (3) Significant relationship exists between continuous commitment and efficiency in among workforce of municipality. (4) Direct and significant relationship exists between continuous commitment and efficiency. (5) Significant relationship exists between normative commitments and efficiency of employees in North Khorasan.

Key words: Organizational commitment, efficiency, Employee, normative commitment

INTRODUCTION

One of main factors in surviving of organization very important and considered by managers of organizations is human force. Studying and investigating history of developing industrial communities show that skilled workforce has essential effect on developing traditional society. Therefore, workforce is the most important factor of developing



**Seyed Ahmad Akbarpour and Zahra Noori Tupkanloo**

communities and organizations (Talleb pour and Emami, 2006). One of other variable that can have vital effect on achieving objectives of organizational commitment. Organizational commitment can describe as belief in the values and goals of the organization, feel loyalty to the organization, moral obligation, heart's desire and need to stay. Based on perspectives of Allem and Mir is considered as three components: 1. Organizational commitment; 2. Normative commitment 3. Continuous pledge (Madani and Zahedi, 2005).

From the viewpoint of national and organizational development, require continuous investment to improve future development ability. However, when training require are paid special attention, more financial resources would be invested. Therefore, the preferential training resources range the quality system controls (Herschbach, 1997). During the attempted development of organizational reform, establishing organizational commitment and internal social environment would be conducive for leaders to improve their organizational culture and develop period goals (Mendersen, et al, 2005; Maseden, et al, 1997). Business managers generally understand the importance of investment on personnel and the positive effect on personnel training on organizational performance.

Definition of Organizational Commitment

Although approaches to the definition of organizational commitment may vary considerably (Becker, 1960; Buchanan, 1974; Grusky, 1966; Hall, Schneider, & Nygren, 1970; Hrebiniak & Alutto, 1972; Kanter, 1968; Salancik, 1977; Weiner & Gechman, 1977), certain trends are evident. In particular, many of these definitions focus on commitment-related behaviors. For example, when we talk about someone becoming "bound by his actions" or "behaviors that exceed formal and/or normative expectations," we are in effect focusing on overt manifestations of commitment. Such behaviors represent sunk costs in the organization where individuals forgo alternative courses of action and choose to link themselves to the organization.

Organizational commitment defined as psychological attachment of workers to their organizations has been an area to active research over the past several decades (Benkhoff, 1997; Mathieu and Zajac, 1990). Commitment to organization has been found to relate positively to a variety of desirable work outcomes including employee job satisfaction, motivation and performance and negatively correlated to absenteeism and turn over.

Robinson, S. & Rousseau, D., (1994), Violating the psychological contract: not the exception but the norm. *Journal of Organizational Behavior*, 15, pp. 245 – 259

LITERATURE REVIEW

Overall job satisfaction (JS) refers to an employee's evaluation of his/her work and his/her working conditions (Robinson and Rousseau, 1994; Zhao et al, 2007). It constitutes an attitude rather than an emotion in the sense that it is an "evaluative judgment" of one's work but also an "affective-laden attitude", susceptible to recent organizational changes, especially regarding his/her work conditions (Weiss and Beal, 2005, p. 3; Eisenberger et al, 1997, p. 814). Weiss (2002), in particular, suggests that JS is influenced by both affective experiences and work beliefs. In respect of organizational commitment (OC), literature offers many and varied definitions, among which the most widely used is the one proposed by Meyer and Allen (1984) and describes it as the strength of an individual's identification with and attachment to an organization. Although, Meyer and Allen (1991) introduced a three-component measure, psychological contract literature has focused mainly on the affective aspect of commitment, since it has been acknowledged to better reflect an attitude, both conceptually and operationally (Zhao et al, 2007). Affective commitment has been defined as "employees' emotional attachment to, identification with, and involvement in, the organization" (Meyer et al, 1998, p. 32). Rousseau (1989) and Coyle-Shapiro and Kessler (2000) argued that the concept of psychological contract is tied to employee's commitment, since it appears to influence employee's beliefs regarding his/her relationship with the organization. When a positive perception is shaped, employees tend to be



**Seyed Ahmad Akbarpour and Zahra Noori Tupkanloo**

more committed, leading, in turn, to readiness for undertaking tasks and work roles, and willingness to engage in extra-role behaviors and avoid negative behaviors such as tardiness, poor performance, absenteeism and intention to leave (Schalk and Roe, 2007). On the contrary, when a negative perception is shaped (e.g., contract breach), employees may decrease their trust in and identification with their organization, and feelings of dissatisfaction may emerge, in order to restore the balance to their exchange relationship (Robinson, 1996; Robinson and Rousseau, 1994). Along this line of reasoning, Lester et al (2002) provided supporting evidence for the relationship between PCB and OC adopting global measures.

Rousseau (1989) and Coyle-Shapiro and Kessler (2000) argued that the concept of psychological contract is tied to employee's commitment, since it appears to influence employee's beliefs regarding his/her relationship with the organization. When a positive perception is shaped, employees tend to be more committed, leading, in turn, to readiness for undertaking tasks and work roles, and willingness to engage in extra-role behaviors and avoid negative behaviors such as tardiness, poor performance, absenteeism and intention to leave (Schalk and Roe, 2007). On the contrary, when a negative perception is shaped (e.g., contract breach), employees may decrease their trust in and identification with their organization, and feelings of dissatisfaction may emerge, in order to restore the balance to their exchange relationship (Robinson, 1996; Robinson and Rousseau, 1994). Along this line of reasoning, Lester et al (2002) provided supporting evidence for the relationship between PCB and OC adopting global measures. Significance level of efficiency is 0.087. Since, it is more than 0.05; therefore, this distribution is normal.

Significance level of commitment is 0.511. Due to, it is more than 0.05; therefore, this distribution is normal.

Significance level of normative commitment is 0.128. Because of it is more than 0.05; therefore, this distribution is normal.

Significance level of continuous commitment is 0.000. Due to, it is less than 0.05; therefore, this distribution is non-normal.

Significance level of commitment is 0.002. Since, it is less than 0.05; therefore, this distribution is non-normal.

In according to results of Kolmogrov-Smirinov shows Non-normality of two variables of income and market value and due number of statistical sample is 215 and it is more than 30; therefore, central limit theorem can be considered normal population distribution.

Test of Hypothesis

Coefficient regression is statistical tool in order to determine type and degree of quantities variable with another quantities variable. Coefficient regression is one of criteria related to determining coefficient regression of two variables. Coefficient regression shows intensity of relationship as well as type relationship (direct or reverse). This coefficient is between 1 and -1 and in the absence of a relationship between two variables is zero. In these tests will appear a correlation coefficient and a significance level of output table. If the error is significantly lower than the value inferred that, the correlation coefficient is significant. Since, these tests are considered as 5 percent, less 5 percent shows significant coefficient regression.

Test of first hypothesis

H0: There is not significant relationship between organizational commitment and efficiency of workforce.

H0: Significant relationship exists between organizational commitment and efficiency of workforce.





Seyed Ahmad Akbarpour and Zahra Noori Tupkanloo

Result of hypothesis

Result of test show that significant is less than 0.05 and therefore the null hypothesis is rejected or in other word significant relationship exists between organizational commitment and efficiency as well as this relationship is positive and it means by increasing organizational commitment and it leads higher efficiency and reverse.

Test of second hypothesis

H0: There is not significant relationship and emotional commitment and efficiency

H2: Significant relationship exists between emotional commitment and efficiency

Result of test show that significant is less than 0.05. Thus, null hypothesis is rejected or another word significant relationship exists between emotional commitment and efficiency

Test of third hypothesis

H0: There is not significant relationship and continuous commitment and efficiency

H3: Significant relationship exists between continuous commitment and efficiency

Result of the hypothesis indicates that significant is less than 0.05; therefore, the null hypothesis is rejected. It means that significant relationship exists between continuous commitment and efficiency.

Test of fourth hypothesis

H0: There is not significant relationship and normative commitment and efficiency

H4: Significant relationship exists between normative commitment and efficiency

Result of the hypothesis

Result of test shows that significant is less than 0.05, null hypothesis is rejected, and it means significant relationship exists between normative commitment and efficiency.

CONCLUSION

Results of hypothesis show that significant relationship exists between organizational commitment and job performance. In according to results of the research significant relationship exists between three dimensions in among clerks of municipality of North Khorasan and efficiency. Thus, it is proposed that more pay attention to organizational commitment especially clerks.

Results of second hypothesis indicate that significant relationship exists between emotional commitment and efficiency.





Seyed Ahmad Akbarpour and Zahra Noori Tupkanloo

Results of third hypothesis show that significant relationship exists between continuous commitment and efficiency in among workforce of municipality of North Khorasan. In according to third hypothesis show that significant relationship exists between continuous commitment and efficiency of workforce. Therefore, we recommend that we should improve continuous commitment in order to boost intention of workforce to continue in working in the organization. Furthermore, this dimension of commitment includes cost of leaving organization. Continuous commitment is one of vital indexes commitment. If investment increases, the likelihood of turnover is reduced and the clerk can leave the organization.

Results of third hypothesis show that direct and significant relationship exists between continuous commitment and efficiency. In according to continuous commitment shows costs due to having to leave the organization and remain also continuing to serve on the organization. Therefore, if opportunity cost of anybody in out of the organization decrease and rise investment, chance of leaving the organization will reduce. In other word, by consuming time for education and more attempt can decrease chance of leaving organization as well as need to continue their work in the organization. Therefore, it is proposed that job of the organization's merit to the employees feel that they are better than other organizations with employment equity.

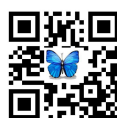
Results of fourth hypothesis showed that significant relationship exists between normative commitments and efficiency of North Khorasan clerks. Thus, we recommend that increase commitment and leads efficiency.

Intend to remain in organizations
Intend to extra exert effort
Strong belief in the values and goals

High Definition is the sharing of mental state is undertaking and it shows relationship between individual and organizations.

REFERENCES

1. Becker. H. S. Notes on the concept of commitment. American journal of sociology. 1960. 66, 32-41. Buchanan. B. Building organizational commitment: The socialization of managers in work organizations. Administrative Science Quarterly, 1974, 19, 533-546.
2. Eisenberger, R. , Cummings, J., Armeli, S. & Lynch, P., (1997), Perceived organizational support, discretionary treatment, and job satisfaction, Journal of Applied Psychology, 82 (5), pp. 812 -820.
3. Grusky. O, (1996), Career mobility and organizational commitment, Administrative science. Quarterly.10, 488-503
4. Hall. D. T., & Schneider. B. Correlates of organizational identification as a function of career pattern and organizational type. Administrative Science Quarterly. 1972, 17, 340-350.
5. Hrebiniak, L. C.. & Alutto, J. A. Personal and role-related factors in the development of organizational commitment. Administrative Science Quarterly, 1972, 17, 555-572.
6. Kanter. R. M. Commitment and social organization: A study of commitment mechanisms in utopian communities. American Sociological Review. 1968, 33, 499-517.
7. Meyer, J. & Allen, N., (1991), A three-component conceptualization of organizational commitment, Human Resources Management Review, 1 (1), pp. 61 – 89.
8. Robinson, S., (1996), Trust and breach of the psychological contract", Administrative Science Quarterly, 41 (4), pp. 574 – 599.
9. Rousseau, D., (1989), Psychological and implied contracts in organizations. Employee Responsibilities and Rights Journal, 2 (2), pp. 121 – 139.





Sayed Ahmad Akbarpour and Zahra Noori Tupkanloo

10. Salancik, G. R. Commitment and the control of organizational behavior and belief. In B. M. Staw and G. R. Salancik (Eds.). *New directions in organizational behavior*. Chicago: St. Clair Press. 1977.
11. Schalk, R.& Roe, R., (2007), Towards a dynamic model of the psychological contract. *Journal for the Theory of Social Behavior*, 37 (2), pp. 167 – 182.
12. Weiss, H. & Beal, D., (2005), Reflections on affective events theory, *Research on emotion in organizations*, 1, pp. 1 – 21.
13. Wiener, Y., & Gechman, A. S. Commitment: A behavioral approach to job involvement. *Journal of Vocational Behavior*, 1977, 10, 47-52.
14. Zhao, H., Wayne, S., Glibkowski, B. & Bravo, J., (2007), the impact of psychological contract breach on work-related outcomes: a meta-analysis. *Personnel Psychology*, 60, pp. 647 – 680.
15. Zhao, H., Wayne, S., Glibkowski, B. & Bravo, J., (2007), The impact of psychological contract breach on work-related outcomes: a meta-analysis. *Personnel Psychology*, 60, pp. 647 – 680

Table 1: Frequency of respondents based on Genders

Gender	Frequency	Percentage
Female	123	57
Male	92	43
Total	215	100

Based on the table, 57 percent of respondents are female and remain are male.

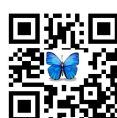
Table 2: Frequency of respondents based on education

Education	Frequency	Percentage
Diploma	12	6
Associated Degree	102	48
Bachelor Degree	87	41
Master	14	7
PhD	0	0
Total	215	100

In according to the table, the highest frequency belongs to associated degree and PhD has the lowest level of frequency.

Table 3: Descriptive Statistics:

Emotional	Continuous	Normative	Commitment	efficiency	Indexes	
215	215	215	215	215	sample size	
3.330	3.345	3.362	3.414	3.133	Mean	parameters of the normal distribution
0.541	0.506	0.415	0.555	0.371	SD	





Seyed Ahmad Akbarpour and Zahra Noori Tupkanloo

Table 4: Normality test of independent and dependent (Kolmogorov-Smirinov)

Emotional	Continuous	Normative	Commitment	efficiency	Indexes	
215	215	215	215	215	sample	
3.330	3.345	3.362	3.414	3.133	Mean	parameters of the normal distribution
0.541	0.506	0.415	0.555	0.371	SD	
1.869	2.191	1.172	0.821	1.251	Kolmogorov-Smirinov	
0.002	0.000	0.128	0.511	0.087	Significance	
Non-Normality	Non-Normality	Normality	Normality	Normality	Results	
Normality	Normality	----	----	----	test result of the central limit theorem	

Table 5: Statistical results

Coefficient regression	Significant	Dependent variable	Independent variable
0.615	0.000	Efficiency	Organizational commitment

Table 6: Statistical results

Coefficient regression	Sig	Dependent variable	Independent variable
0.524	0.000	Efficiency	Organizational commitment

Table 8: Statistical results of third hypothesis

Coefficient regression	Sig	Dependent variable	Independent variable
0.450	0.000	Efficiency	Continues commitment

Table 9: Statistical results of fourth hypothesis

Coefficient regression	Sig	Dependent variable	Independent variable
0.550	0.000	Efficiency	Normative commitment





Seyed Ahmad Akbarpour and Zahra Noori Tupkanloo

Table 10: Brief result of tests:

Results of test	Significance	Coefficient regression	
Rejected null hypothesis	0.000	0.615	Significant relationship exists between organizational commitment and efficiency
Rejected null hypothesis	0.000	0.524	Significant relationship exists between emotional commitment and efficiency
Rejected null hypothesis	0.000	0.450	Significant relationship exists between continuous commitment and efficiency
Rejected null hypothesis	0.000	0.551	Significant relationship exists between normative commitment and efficiency





RESEARCH ARTICLE

The effect of Size and Age on Firms' Dividend Policy and Market Value Added

Somayyeh Tamnanlou¹ and Abdorreza Asadi (PhD)^{2*}

¹MSc of Business Administration Department of Management, Islamic Azad University Neyshabur Branch, Neyshabur, Iran.

²Assistant Professor of Finance Department of management, Islamic Azad University Neyshabur Branch, Neyshabur, Iran.

Received: 18 Jan 2015

Revised: 21 Feb 2015

Accepted: 19 Mar 2015

***Address for correspondence**

Abdorreza Asadi

Assistant Professor of Finance Department of management,
Islamic Azad University Neyshabur Branch,
Neyshabur, Iran.

Mobile: +989156993166

E-mail: Abdorrezaasadi@yahoo.com.



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License** (CC BY-NC-ND 3.0) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

The present study is to investigate the effect of age and size on firms' dividend policy and market added value of listed companies in Tehran Stock Exchange over the period of 1385 -1391. The present study can be categorized in applied researches based on research purpose, whereas based on research methodology the study is categorized among correlation researches. Its hypotheses deal with age and size effect on firms' dividend policy and also with relation between dividend policy and market added value. The results indicate that firm size affects dividend policy whereas the effect of firm age on market added value is insignificant, while a significant relation between firm age and dividend policy and also firms size and market added value is significantly accepted.

Key words: Firm age, Firm size, Dividend policy, Market value added

INTRODUCTION

One of the most important issues in financial management is Dividend policy. Dividend is an indicator of firms' cash payments and the most important choices and decisions facing managers. (Kazemnejad and Setayesh, 1389). One of the major reasons to buy securities is to get dividend. Dividend is seen as important information in making





Somayyeh Tamnanlou and Abdorreza Asadi

economical decisions and as a guide to pay cash dividend, as a measuring and predicting device for managers, investors and financial analysts to know about management influence and to evaluate decisions. (Glitymoghadam and Salehnejad, 1388). Investors' expected return is made of two parts: capital gain and cash dividend. One of factors considered in cash dividend and capital interest achievement is company's lifecycle. According to Gordon and Walter firms are categorized in three groups: developing, mature, static. One of the most useful criteria to analyze companies' performance and also to predict their equities value is market added value. This criterion, market added value, measures directly value added of stockholders' equities in respect to used and added capital. Lawyers use in the best way this measure for competition purposes of return, performance and growth

The issue and its importance

Making decision on paying cash dividend is an important one which fair faces with. Firms' policy on cash dividend is of those factors that influences company's value. Companies which decrease their Dividend will counter a fall in their value, therefore managers tend to avoid high interest pay unless they ensure their ability to maintain high level of Dividend (Izadiniya and Alinaghaiyan 1390). According to Gordon and Walter model Dividend policy influences company's value and depends on institution situation in growth condition. Accumulating interest and transforming it to invest in schemes developing institutions will cause an increase in equities price. Mature companies have no good chance to investment, so Dividend policy doesn't have any influence on their equities price. At finally descending corporates are in a condition that their life curve covers final conditions and their return rate and investment is less than their capital cost rate. Moreover market added value shows how much a company is successful in using capital and also predict profitable future opportunities and plans to achieve it, so to make an increase in market added value can be primary goal of any company.

A review on research background

Miler and Moudiliani (1961) were first persons who faced the importance of Dividend. They argued that till the distribution of cash flows of company are constant and considering no tax, choosing any Dividend policy has no impact on current value of equities, because an increase in Dividend is obtained by selling new equities, and in regard to no change in capital structure selling new equities decreases ratio of each equity as much as Dividend, accordingly Dividend has no influence on company's value. However later researches showed that higher Dividend causes to increase company's value.

Phinny (2000) in a research named "effective factors on profitable industries" has dealt with these factors among 142 Australian corporates. His study has been in form of sectional data and based on three-year average of 1994 to 1997. He studied intensity of capital influence on considered companies' interest estimating impact of factors like company size, company age, capital supply, selling rate, management and workforce impact on interest. He finally concluded that intensity of studied capitals on interest of various industrial activities is different. He also concluded that there is a significant relation between industrial activity type and effective factors on their profitability.

Komounen (2000) in a research titled " effective factors on producing company's profitability" has dealt with factors such as selling rate, workforce number, resources, capital rate, and maintaining cost of other factors on producing companies interest. The results of his study indicated that selling rate and workforce cost have more impact on producing companies' interest than other variables.

Malekiyan and Ahmadpour (1389) studied effective factors on precision of predicted interest by companies. Their findings show that there was no significant relation between company size and accuracy of interest predicting. However there was a negative relation between precision of interest predicting and company life (age), indicating





Somayyeh Tamnanlou and Abdorreza Asadi

that newer companies using more developed technology are more successful in determining and make profitability true.

Ghoryani (1385) investigated on relationship between interest and cash flows, and company value within company lifecycle. His discoveries say that in growth and descending stages there is a stronger relation between cash flows and company value than between interest and company value, and in mature stage this relations prove opposite of the case.

Sajadi (1386) studied effective factors on companies` interest. In this research six factors including industry, size and age of a company, capital ratio to asset, debt ratio to asset and advertising cost on company profitability were examined. These research findings indicate that if profitability criterion is defined as asset return and adjusted return of asset, variables like size, capital ratio to asset, and debt ratio to asset will have an impact on profitability. But industry type, age and cost of advertisement on interest will be without impact. Furthermore if profitability criterion is considered as capital return then industry type and company size will be effective on profitability, but age, capital ratio to asset, debt ratio to asset and advertising cost have no influence on profitability.

Research questions

According to theoretical bases and mentioned background this study is to answer following questions:

- 1) Is there any significant relation between firm size and Dividend policy?
- 2) Is there any significant relation between firm age and Dividend policy?
- 3) Is there any significant relation between firm Dividend policy and market value added?
- 4) Is there any significant relation between firm size and market value added?
- 5) Is there any significant relation between firm age and market value added?

Research hypotheses

Regarding to the above questions following hypotheses have been prepared:

- 1) There is a significant relation between firm size and Dividend policy.
- 2) There is a significant relation between firm age and Dividend policy.
- 3) There is a significant relation between firm Dividend policy and market value added.
- 4) There is a significant relation between firm size and market value added.
- 5) There is a significant relation between firm age and market value added.

METHODOLOGY

The present study is an applied one in respect of its purpose. Financial data is obtained from financial statements, software and explaining notes related to studied companies. To analyze the data and to test the hypotheses simple regression model and Data Panel have been used. After necessary calculating in excel software, Eviews software was employed to analyze data.

Statistical community of the study includes all listed companies in Tehran Stock Exchange among seven chosen industries having following conditions:

- 1) They have been listed before 1385.





Somayyeh Tamnanlou and Abdorreza Asadi

2) Because of reporting date analogy, deleting seasonal impacts, increasing comparative capability of data their financial year is in Esfand.

3) As calculating research variables and testing hypotheses are vital, necessary information related to each company has been existed and released in order to measure considered variables.

4) Because data construction of the research is in panel way, we need 6 year data at least, so considered companies' stock had to be traded in period time of 1385- 1391.

In respect of above conditions, the chosen sample contains 109 companies accepted in Tehran Stuck Exchange.

In this research size and age of a company are used as independent variables, while Dividend and market value added as dependent variables.

Date analyzing and hypotheses testing

Because one of fundamental hypotheses in regression is remaining sentences hence normal probability graph has been used to test normality of remainders. In order to examine independency of reminders Watson Camera test has been employed. Regarding to this that research data is prepared based on compound data structure (Panel data), so to examine the relation of each independent variables with dependent variables correlation test and multifold regression models in panel tests form have been used.

RESEARCH FINDINGS

First hypotheses testing

For first hypothesis which deal with relation between company size and Dividend policy, regression model of first equation is tested:

$$DPRT = \alpha + \beta_1 \text{size}_t + \epsilon_t \quad (1)$$

Where DPR is Dividend policy indicator, dependent variable, and Size is firm size indicator, independent variable at t time.

Now let's deal with analytical model (1) on variables data including company size and Dividend policy. Analytical result of regression model on related variables are given in following table.

In respect of extracted results from table and statistical value F and P- value from that ($F= 2.287$, $p\text{-value} = 0.13 > 0.05$), one can admit that given analytical model on research data is insignificant. In other words at 0.05 level, "company size has no significant effect on Dividend policy."

Also according to presented findings in table 1, it is seen that R-Square is 0.003 indicating very weak explanatory power of independent variable (firm size) from dependent variable changes (Dividend policy). This matter is a confirmation for tested hypothesis rejection. On the other hand value of Durbin-Watson statics equals 1.95 which informs lack of autocorrelation between error terms in the model.

Second hypothesis testing

To examine the second hypothesis dealing with relation between company age and Dividend policy regression model of equation 2 is used:





Somayyeh Tamnanlou and Abdorreza Asadi

$$DPR_t = \alpha + \beta_1 Age_t + \epsilon_t \quad (2)$$

Where DPR is Dividend policy index, dependent variable, and Age is firm age index, independent variable, at t time.

Regarding to results extracted from the table and statistics value F and p-value estimated from it (F=4.745, p-value=0.03<0.05) one can admit that analytical given model on research data is significant. In other words at 0.05 level "firm age has a significant effect on Dividend policy".

Also according to presented findings in the table it is seen that Determiner coefficient is 0.003 indicating that very weak determining independent variable (company age) from dependent variable changes (Dividend policy). That is the impact of company age on Dividend policy is weak. In other words firm age has a weak effect on Dividend policy. On the other hand Durbin-Watson statistic value is 1.96 showing lack of autocorrelation among error terms in the model.

Third hypothesis testing

To test third hypothesis studying the relation between Dividend policy and market added value, we have used regression model of equation 3:

$$MVA_t = \alpha + \beta_1 DPR_t + \beta_2 size + \beta_3 Age + \epsilon_t \quad (3)$$

Where MVA shows market value added index as a dependent variable, DPR is Dividend policy index as an independent variable, and control variables at t time, are firm size and age respectively. In respect of statistics value related to F and p-value from that (F= 50.54, p-value = 0.00<0.05) we can conclude that examined model is significant. In other words at 0.05 level "Dividend policy has a significant effect on firms' market value added".

Regarding to findings it is clear that Determiner coefficient equals 0.65 indicating little explaining of independent and control variables (Dividend policy, size and age of company) from dependent variables changes (market added value). On the other hand the value of Durbin-Watson is 2.47 showing that there is no autocorrelation problem in the model.

Forth hypothesis testing

For this hypothesis which investigates the relation between firm size and market value added, we use regression model 4 to test it:

$$MVA_t = \alpha + \beta_1 size_t + \epsilon_t \quad (4)$$

IN equation 4, MVA shows market value added index as a dependent variable, and Size is company size as an independent variable at t time.

According to statistics value F and p-value gained from that, one can confess that this model is significant. Therefore forth hypothesis of the research is accepted. In other words at 0.05 level "firm size has a significant effect on market value added".

Based on table 4, it is seen that R-square is 0.65 indicating that dependent variable (firm size) determines independent variable (market value added) weakly. In one hand Durbin-Watson statistics value is 2.48 indicating that there is no





Somayyeh Tamnanlou and Abdorreza Asadi

autocorrelation problem in the model. On the hand the significant considered model ($F= 602.48$, $p\text{-value} = 0.00 < 0.05$), and forth hypothesis are still acceptable.

Fifth hypothesis testing

For fifth hypothesis dealing with relation between company age and market added value, regression model 5 has been used for testing processes:

$$MVAt = \alpha + \beta_1 Aget + \epsilon t \quad (5)$$

MVA is showing market value added index as a dependent variable, and Age is indicating firm age as an independent variable at t time.

IN respect of statistics value of F and p-value ($F = 0.0002$, $p\text{-value} = 0.98 > 0.05$) we can conclude meaninglessness of the model. Hence at 0.05 level "Firm age has no significant effect on market value added".

Regarding to the table 5, it is obvious that R-square equals 0.65 showing that independent variables explain 65 percent of changes in dependent variable at all. On the other side Durbin-Watson value is 2.6 indicating that there is no autocorrelation problem among error terms in the model. On the other hand it is seen that the model is significant. ($F = 598.72$, $p\text{-value} = 0.00 < 0.05$) but regarding to values of F and p-value we find that the effect of firm age is insignificant causing the hypothesis to be rejected.

DISCUSSION AND CONCLUSION

Considering the results obtained from research hypotheses testing, we can find that the first hypothesis based on the presence of significant relation between firm size and Dividend policy has been rejected. This means that a company's assets value has no effect on Dividend policy of that company. The results from statistical analysis of hypotheses show that there is a significant relation between firm age and Dividend policy. The mentioned results are consistent with previous studies of Malekiyan and Ahmadpour (1389), Jetkits et.al (2004) and D.Anjelo et.al(2006). Statistical results from third hypothesis indicate that there is a significant relation between Dividend policy and market value added. These results are also consistent with former researches of Roudposhti (1386), Kramer and Peters (2001). Forth hypothesis reveals that a significant relation between firm size and market value added is accepted. The result shows that a company's assets value can make different values added for that company. Statistical analysis result for fifth hypothesis showed that there is insignificant relation between firm age and market value added. This result means that the stages of a firm age have no effect on that market value added.

REFERENCES

1. Deangelo .H. Deangelo . L and R.M. Stulz (2006) Division policy and the Earned /Contributed capital mix : a Test of the life – cycle Theory. journal of financial economic . vol .81. pp . 254 – 227.
2. Feeny, S. (2000). Determinants of profitability: An Empirical Investigation using Australian tax entities, Australia: Melbourne Institute Working, paper No. 1.
3. Ghoryani.a (1385); To examine the relation between interest and cash flow with company value within company lifecycle; MA Thesis Azad university of Mashhad.
4. Izadiniya.N, Alinaghiyan.N (1390); Recognizing effective factors on division interest using Lajeit model, magazine of financial accounting studies, NO1 Ps 21-38





Somayyeh Tamnanlou and Abdorreza Asadi

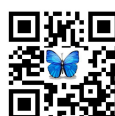
5. Jenkins , D. S , Kane , G. D and Velury , u. (2004). " the Impact of the corporate Life Cycle on the Value Relevance of Disaggregated Earnings Components ". Review of Accounting and finance Vol. 3 , pp. 5-20.
6. Komonen, K. (2000). A cost model of industrial maintenance for profitability analysis and benchmarking, Production Economics 79. 82-105.
7. Kramer , Jonathan. K , & peters , Jonathan R (2001) "An Inter – industry analysis of economic value Added as a proxy for Market Value Added ", Journal Of Applied Corporate finance. pp 1-15.
8. Malekiyan.E; Ahmadpour. A; Rahmani Nasrabadi.M; Daryani. A.A (1389); Effective factors on accuracy of predicted interest by companies evidences from: Stuck Exchange of Tehran, Accounting and Accountancy studies, Period 17th, No 61, Ps 23-38
9. Miller M. and F.Modigliani . (1961). Dividend policy , growth and the valuation of shares. Journal of Businss 34,pp.411-433.
10. Rahnama Roudposhti (1386) Studying and evaluating of economical added value and market added value in order to evaluate companies` function, economical research, 7th year, No 2, Ps 163-167
11. Setayesh.M.H; Kazemnejad.M (1389), To study the impact of ownership structure and board of directors construction on Dividend policy of companies accepted in Tehran Stuck Exchange, Accounting knowledge magazine, Ps 29-51
12. Sajadi.H; Dastgir.M; Farazmand.H; Mahmoudi.V (1386), Effective factors on companies` profitability accepted in Tehran Stuck Exchange, Economical researches, No 80, Ps 49-73
13. Salehnejad.H; Glinimoghadam.F (1388); The relation of company size and β and financial lever with companies` profitability accepted in Tehran Stuck Exchange.

Table1. Test of firm size on Dividend policy

Variable	Estimated parameter	T-Value	P-Value
Constant	1.1	4.35	0.000
Firm Size	-0.06	-1.51	0.130
R-Square	0.003		
Adjusted R-Square	0.002		
F-Value	2.287		
P-Value	0.130		
Durbin-Watson	1.95		

Table 2: Test of the effect of firm age on Dividend policy

Variable	Estimated parameter	T-Value	P-Value
Constant	0.872	12.99	0.000
Firm Age	-0.004	-2.178	0.03
R-Square	0.006		
Adjusted R-Square	0.005		
F-Value	4.745		
P-Value	0.03		
Durbin-Watson	1.96		





Somayyeh Tamnanlou and Abdorreza Asadi

Table 3: Test of the effect of Dividend policy on Market Value Added

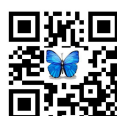
Variable	Estimated parameter	T-Value	P-Value
Constant	-21198475	-1.5	0.13
Dividend Policy	76023.6	0.57	0.57
Firm Size	4087851	2.8	0.004
Firm Age	-98120.6	-0.51	0.60
AR(1)	0.95	30.5	0.00
R-Square	0.65		
Adjusted R-Square	0.65		
F-Value	300.73		
P-Value	0.00		
Durbin-Watson	2.47		

Table 4: Test of the effect of firm size on Market Value Added

Variable	Estimated parameter	T-Value	P-Value
Constant	-25015210	-2.24	0.02
Firm Age	3820707	2.62	0.008
AR(1)	0.96	30.55	0.00
R-Square	0.65		
Adjusted R-Square	0.65		
F-Value	602.48		
P-Value	0.00		
Durbin-Watson	2.48		

Table 5: Test of the effect of Firm age on Market Value Added

Variable	Estimated parameter	T-Value	P-Value
Constant	-825077.1	-0.07	0.95
Firm Age	138826.6	0.29	0.80
AR(1)	1.02	34.6	0.00
R-Square	0.65		
Adjusted R-Square	0.65		
F-Value	598.72		
P-Value	0.00		
Durbin-Watson	2.6		





Investigation of the Aesthetic Revolutionary of the Word “Raghab” in Holy Quran

Mohammed Saleh Sharif Askari¹ and Mehdi Shafai^{2*}

¹Associate Professor of Department of Arabic Language and Literature, Faculty of Humanities, Kharazmi University, Tehran, Iran.

²Phd student of Department of Arabic Language and Literature, Faculty of Humanities, Kharazmi University, Tehran, Iran, Email: mehdishafayi@gmail.com.

Received: 18 Jan 2015

Revised: 21 Feb 2015

Accepted: 19 Mar 2015

*Address for correspondence

Mehdi Shafai

Phd student of Department of Arabic Language and Literature,
Faculty of Humanities, Kharazmi University,

Tehran, Iran,

E-mail: mehdishafayi@gmail.com.



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License** (CC BY-NC-ND 3.0) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

Holy Quran contains the important conceptual, rhetoric and expressive elements that in addition to several promising orders for human life it has offered multi-dimensional set of different logical and traditional sciences; in this regard, semantics and rhetoric sciences have outstanding place. On one hand, they cause to rapid perception of the holy speeches and on other hand, they emphasize the rhetoric miracles aspects and divine expression compared to other speeches. Regarding to the perception of the semantics and linguistics different aspects and characteristics of holy Quran, this article aims to investigate different rhetoric and conceptual characteristics of “Raghab” in Quran. The author has investigated different rhetoric and semantic aspects of the word “Raghab” and he has referred to the former and contemporary important semantic books. The results of this research depict that “Raghab” is one of the Quran principles; and in sum, this word has been used in eight verses (three in Mecca and five in Media chapters). It involves kinds of love that denotes severity of tendency and desire toward something; also it was specified that if “Raghab: is accompanied by “An”-as it is seen in the chapter Merriam, verse 46 it has paradoxical meaning of disclaimer.

Key words: holy Quran, “Raghab”, aesthetic, linguistic, semantic.





Mohammed Saleh Sharif Askari and Mehdi Shafai

INTRODUCTION

Paying attention and discussion about linguistic and semantic aspects of Quran, proved its congruence and linkage with the relationship between audience and text. This congruence is in continuity of human beings relationship with reality which means the effect of psychological fact on his or her power of mobility over the years. Based on this, important factors will be evident in the human beings behavior and the God will speak with the worshiper (R.K: Yasof, 1388: 37). From this point of view, many religious and literary scholars consider the Quran to be a miracle. Quran is considered to be a miracle because of the harmony between its letters and words, the cohesion and coherence in phrases and a rich style and because its phrases and sentences are connected in a comprehensive way that each part is a complement for the others and lead to the intended result. The other point is that the meanings are in congruence with the words in a way that it seems the words have originally been written to represent these meanings (R.k: Abohamze, 1379:120).

Nowadays, what is evident in the discussions about Quran is looking to it as a literary text and this is in harmony with the oral miracle of Quran. In the other word, the new approaches toward analyzing the Quran look at functional and discourse analyses beside phonological, morphological, syntactic and semantic analyses (Mir & Abdoulauf, 1390: 16).

Based on these new approaches, the present study tries to look at different aspects of semantic and morphological structures of Quran beside its word-finding aspects.

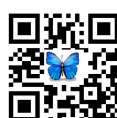
Statement of the problem

As it has been emphasized many times and has been proved by historical evidence, Quran has such a rhythm and clarity that invokes the feelings of every listener, even when he or she doesn't know Arabic, as the words' clarity, accent, nasality, end's space and stops attract every foreign listener even when he or she doesn't know the meaning of the words. The rhythm of Quran gives it an indelible song and every word has a recitative style. Also, every phrase of it has an attractive speech style that reflects the meaning in a clear way and makes the whole text coherent (R.K: Abouhamze, 1379: 122).

Actually, the words in Quran are used meticulously and judiciously and often you have to read it several time to find out the meaning of text and its words comprehensively (Mir & Abdoulauf, 1390: 28).

In spite of that, there is an important point here that needs consideration. There are different approaches in word-finding in Quran and Mostanser Mir argues that:

"The language of Quran is clear and illustrative and metaphor and allegory are frequently used in it. Quran language is both similar to and different from the Arabic language before Islam. Quran words, although clear and illustrative for those who know Arabic, are limited in their depth and breadth. The number of Arabic words' roots in Quran are less than two thousand and so it make the text understanding much easier for the reader. Also, the reader can easily distinguish Quran language from the language of poets and orators. Quran used common words with unique meanings, invented specific idioms and then has put them in the context of positive worldview with complex and complicates relationships. The network effect of this process, has made a coherent design of religious thought and mature Arabic plays the role of the entrance gate for this design. In this way, Quran language with its prominent style, is the tool for expressing philosophical, religious and cultural thoughts that was presented as a gift to the people in the beginning of Islam (Mir, 2006: 92).





Mohammed Saleh Sharif Askari and Mehdi Shafai

It is not possible to explore Quranic words and interpretations in a short time or in new few articles and this needs an exhaustive discussion. However, exploring Quranic words and roots- separately- can show different aspects of Quran word-finding, multifaceted style that are appropriate as God's words.

In this paper, the author tries to explore various semantic and linguistic facets of the word "Raghab" in Quran and shows the delicate process of word-finding in it by researching early and late sources and different words dictionaries.

Purpose of the research

The main purpose of this research is to explore various semantic and linguistics facets of word "Raghab" and Quran's text and context. This way, the author tries to pay attention to verbal and spritual cohesion and coherence of Quranic verses and Surah.

REVIEW OF LITERATURE

Based on the authors' library research, there is no article specifically exploring the semantic and linguistic features of word "Raghab" in Quran. In interpretive texts, different word dictionaries and different sources you can find brief descriptions about this word and its derivations. When necessary, the author has used these descriptions and quoted their sources.

The relationship between semantic and linguistic fields and holy Quran

As the Quran is considered to be a holy text, we cannot speak about it like the other ordinary texts or put it under semantic and linguistic analysis. On the other hand, as the Quran is a really valuable linguistic text and a very important literary book, it is necessary to analyze and evaluate its semantic and linguistic features with consciousness about its holiness (R.K: Khoramshahi, 1389, 1: 6).

Arabic language is well known for its morphological derivations, and this feature makes it rich of useful vocabularies. Morphological implications in Arabic are determined from within its rhythm and are opposite to the languages that need prefix and suffix for new implications. Effective choice of vocabularies and their fitness is among the main factors of this style. This is a stylistic approach in Quran that aims at lining up the phrases. It should be considered that changes in semantic structure of sentences lead to stylistics transformations (R.K: Abdoulraouf, 1390: 105).

In Quran, Theological teachings are incorporated by literary styles and this happens because Quran wants to teach religion and guide people by the help of literary and stylistic language and uses its semantic and linguistic features to do that. So, when researchers such as "Mostanser Mir" and " Hossein Abdoulrauf" consider Quran as a literary text, they don't want to say that Quran is just a literary text and doesn't have other aspects such as religion, ethics, Jurisprudence, social features. It is clear that Quran has considered all the aspects of people's earthly and heavenly life and the orders and commands are sent for all the people of the world not a specific group. Actually, we the researchers speak about Quran as a literary text, they mean a coherent text that all its phrases and verses and surah are connected together logically (R,K: Abdoulrauf, 1390: 11-12).

Quran words with their pitch and nasality and their rhythm brings about a specific eloquence, and therefore there is compatibility between the rhythms and the sound that God has chosen for the words are the best choice based on their superiority (R,K: Abouhamze, 1379: 126).





Mohammed Saleh Sharif Askari and Mehdi Shafai

Some of rhetoric scholars_ at the top “Abdoulghahar Jorjani” (dead 471)_ believed that letters and words will not have great effects on the rhetoric, but all factors that are involved in the system or writing are effective. And also the systemic approach is not the only factor but the compatibility between meaning and words are also important (Jorjani, 999: 44).

In the words of Jorjani, compatibility of the words mean there is no separation in the meaning and rhythm of words and the rhythms are interlocking and the meanings are facile and are related to each other with a unite system in a way that every word is so related to the other words that if we want to put a synonym there, the whole text will be incoherent (Abozohre, 1379: 154).

On the other side, there was another group of scholars _ “Amro Ebn Bahro Aljazez”_ who believed that words and letters have eloquence. Therefore the following poetry which has been written in praising “Harb ebn Omiyeh”, form “Jaez” doesn’t have eloquence as the words and letters has been repeated:

وَقَبِيرٌ حَرْبٍ بِمَكَانٍ قَفْرٍ وَلَيْسَ قُرْبٌ قَبِيرٌ حَرْبٍ قَبِيرٌ

(Jorjani, 992: 57).

We should be careful that Quran phrases follow the precise Quranic stylistic and many of stylistics scholars believe that each phrase in Quran has independent meaning and is connected to the other meanings in a complicated network (Abohamze, 1379: 130).

In the book, “Al-Shafa be Tairif Al-Mostafa” the authors speak about the systems and styles of Quranic words and phrases as follow:

“The second facet of the miracle of Quran is its wonderful system and style that is different from other systems and styles in the Arabic language. The system is an exception and no one can bring something like it and it make the orators wonder as they are not able to bring a poetry or text like it” (Ghiyas Ayaz, 2013: 324).

Raghab In Quran

In Quran, you can find 7 derivations of Raghab that are used in 8 verses (R.K. Mostafa albadr, 1391: 480).

1. And who forsaketh the religion of Abraham save him who befooleth himself? Verily we chose him in the world, and lo! in the Hereafter he is among the righteous (Cow, 130)
2. And they ask you a decision about women. Say: Allah makes known to you His decision concerning them, and that which is recited to you in the Book concerning female orphans whom you do not give what is appointed for them while you desire to marry them, and concerning the weak among children, and that you should deal towards orphans with equity; and whatever good you do, Allah surely knows it (Women, 127)
3. (How much more seemly) had they been content with that which Allah and His messenger had given them and had said: Allah sufficeth us. Allah will give us of His bounty, and (also) His messenger. Unto Allah we are suppliants (Repentance, 59). Maybe, our Lord will give us instead one better than it; surely to our Lord do we make our humble petition (Alghalam, 32).





Mohammed Saleh Sharif Askari and Mehdi Shafai

4. So We responded to him and gave him Yahya and made his wife fit for him; surely they used to hasten, one with another In deeds of goodness and to call upon Us, hoping and fearing and they were humble before Us (Prophets, 90)

5. It did not beseem the people of Medina and those round about them of the dwellers of the desert to remain behind the Apostle of Allah, nor should they desire (anything) for themselves in preference to him; this is because there afflicts them not thirst or fatigue or hunger in Allah's way, nor do they tread a path which enrages the unbelievers, nor do they attain from the enemy what they attain, but a good work is written down to them on account of it; surely Allah does not waste the reward of the doers of good (Repentance, 120)

6. He said: Do you dislike my gods, O Ibrahim? If you do not desist I will certainly revile you, and leave me for a time (Maryam, 46).

7. And make your Lord your exclusive object (Alsharh, 8)

In the following table you can see the different features of derivations of Raghav in Quran.

Examine Raghav in Quran

Raghav is a word in Quran that its root means kind of kindness. As it has been said this word has 7 derivations in 8 verses of Quran (Mostafa Albadr, 1391: 480). From the semantic perspective, Raghav means "inclination and desire for something" (Mailoof, 1380, volume 1, 375), "wants and dreams, desire and greed, demand and favorable act, being interesting and attractive" (Anton Elyas, 1370, 255) and "jealousy and greed for something, demand and greed, favorable act, a lot of interest and greed for something" (Ala Alsaleh and Sheikh Alsalman, 1401: 207).

"Ragheb Esfehiani" defines Raghav as intensity of will and desire and greed for something. He pointed to the 59 verse of Repentance Surah and 90 verse of Prophets Surah claims that when it is said "Raghav Fih" and "Raghav elayh", it means a person is badly willing to do something and has extreme greed for that.

In Raghav, "R" stands for fluency and repetition, "GH" stands for correlation between materials and kindness and "B" stands for a smooth interrelationship. Therefore, the combination of letters means acceptance of that gap or inclusion of many things that are good and nice such as food or drinking (Hassan Jebal, 2010: 821).

The main meaning of Raghav is acceptance of a kind and nice thing in large numbers as we do in inflection of many foods and drinking such as: he ate a lot, he spends a lot, he is greedy, he demanded for something and he mourn and humiliate someone and pray for him (Hassan Jebal, 2010: 823).

As the early semanticists claimed, Raghav means "much likeness and greed and inclination for something" and its considered to be one of the levels of kindness (Ebn Talal Alhashemi, 2010, 247).

The main point that should be considered is that if Raghav is used with "An" as to verses of "Maryam 46" and "cow 130" show the meaning will be avoidance and shirk (Rohi and Feizbakhsh, 1429, 206).

From grammatical perspective, in 127 verse of women Surah, we can consider an appropriate proposition like "Targhabon fie" and "Targhabon an" (Alsafi, 1995, v. 5, 188).

And it is arguable that the future form of Raghav _Yarghab_ has been used in three places:





Mohammed Saleh Sharif Askari and Mehdi Shafai

1. Avoidance like in the cow Surah, verse 130
2. consider himself more important, Repentance Surah, verse 120
3. Likeness like in the Women surah, verse 127 (Mokhtar Omar, 1423, 210)

From religious perspective, Reghbat is the likeness to obtain something as it is clear in verse 90 of Prophets Surah where the believers are described as those who eagerly pray their God. But it should be considered that if Reghbat is the great likeness for material world, it is not acceptable from Quran perspective (Amer Abdoulah Faleh, 1417: 195).

Beside above semantic and linguistic fields being shown in early and late texts, in interpretive texts "Ra Gha B" has great significance. In Rozol Aljanaan interpretation, for the 130 verse of Cow Surah it is written that: Raghan An and Raghav Fieh are opposites (Alkhozayii Al-neyshbori, 1381, V. 2, 147). In Makhzan Al-erfan interpretation, the author claim that Raghav has to opposite meanings one meaning likeness and the other meaning avoidance (Banoye Amin Esfehni, 1361, V.2. 89). In the interpretation of verse 39 of Maryam Surah, it is written that: " When Raghav is used with An it means avoidance and when it is used with Ely it means likeness" (Najafi, 1364, V.11, 154).

In Almizan interpretation, Tabatabayii claim the similar things. In interpretation of verse 32 of Surah Al-Qalam, " Mola Fatolah Kashani" paraphrase Raghav: " Ragheb means we want his pardon and benefaction and we want to obey him or her (Kashani, 1344, v. 9, 383).

RESULT AND DISCUSSION

Quran is a great source for Muslims that always inspired them over the century. The discourse and linguistic structure of Quran has great cohesion and coherence and Muslims class it a miracle. Therefore, it is very important to investigate its semantic and linguistic features.

In the present study, the authored tried to examine word "Raghav" from semantic and linguistic perspective. The result showed that the above word has seven derivations in eight Surah of Quran. The semantic meaning of Raghav is "great likeness and greed for something". The important point is that Raghav has opposite meanings as when it is used with "An" means avoidance and when it is used with "Ala" or "Fi", it means likeness. In Quran, in 6 verses Raghav means likeness and in two verses it means avoidance (Maryam 46 and Cow 130).

From religious perspective, Raghav mean to obtain something that you like and refers to believers who seek the God. Believers are those who search and want their God eagerly and with great likeness.

REFERENCES

1. Quran. Translated by Naser Makarem Shirazi
2. Enb Talal Hashemi. Love in Quran. Jordan. Maktab Alvatanieh publication,
3. Abohamze, Mohamad.1379. The Great Miracle, search in Quran science. Mashhad. Bonyad Pajoheshi publication,2
4. Banoy Amin Esfehni,1361. Interpretation of Makhzan Al Erfan in Quran.volume 10. Tehran, Behzate zanan Mosalman publication
5. Aljorjani Alnahvi, Abdilghader ebn abdulrahman Ebn Mohamad,1992.The reasons of miracle in semantics.
6. Hassan Jabal, Mohamad Hassan,2010. Almajam Eshteghaghi alfaz Quran. Cairo: Maktab Aladab publication
7. Alragheb Alesfahani, Abolghasem seyed Mohamad. Almofradat Fi gharib alghoran. Lebanon. Dar Almaaref publication,4





Mohammed Saleh Sharif Askari and Mehdi Shafai

8. Mohamad Rohi, Mohamad Taghi Fayaz Bakhsh, interpretation of Quran words in Albayan and Almizan. Tehran. Ehyaye Ketab publication
9. Mostafa Albadr, Rafd, 1391. Words of Quran. Qom. Zoghol Ghorba publications
10. Mir, Mustansir 2006. "The Quran", Ed. Andrew Rippin, Malden, USA: Blackwell Publishing, Chap. 6 (Language).
11. Maliof, Lewis, 2010. Tarjoma Monjad fi loghat. Translated by mostafa Rahiminia. Volume 2. Tehran: Saba publication
12. Mir, Mustansir 2006, "The Quran", Ed. Andrew Rippin, Malden, USA: Blackwell Publishing, Chap. 6 (Language).
13. Mokhtar Omar Ahmad, 2011. Almajam Almosa Alfaz Quran. Riyadh. Sotor Alm arefa publication
14. Kashani, Mola Fatollah, 2013. great interpretation of Moonhaj Alsadeghin, volume 10, Tehran. Eslamiye publication, 2.
15. Albdolraof, Hossein 2008. Stylistic of Quran. Translated by parviz Azadi. Tehran: Emam sadegh university publication.

Table 1: different features of derivations of Raghav in Quran.

آیه	نصّ	مادّه «ر غ ب»	* ترجمه کهن واژه	مکی یا مدنی	** اعراب
البقرة / 130	*...وَمَنْ يَرْغَبْ عَنْ مِلَّةِ إِبْرَاهِيمَ*	(يَرْغَبُ) عن	ناخواهان شد / روی گرداند / ...ناخواه شود	مدنی	فعل مضارع مرفوع به ضمّه ظاهره / خبر مقّم / و فاعل هو محذوف
النساء / 127	*وَتَرْغَبُونَ أَنْ تَنْكِحُوهُنَّ ...* وَالْمُسْتَضْعَفِينَ*	تَرْغَبُونَ	می بخواید / خواهان می شوید / خواهش دارید	مدنی	فعل ماضی مرفوع به ثبوت نون / «و» فاعل
التوبة / 59	*إِنَّا إِلَى اللَّهِ رَاغِبُونَ ...*	رَاغِبُونَ	امید داریم / خواهانیم / ...امیدواران	مدنی	خبر إنّ
التوبة / 120	*وَلَا يَرْغَبُوا بِأَنْفُسِهِمْ عَنْ ...* ...نَفْسِهِ*	(لَا) يَرْغَبُوا	ناخواهان باشند / ناخواهان باشند / ...برنگردند	مدنی	فعل مضارع منصوب به حذف نون / «و» فاعل
آیه	نصّ	مادّه «ر غ ب»	ترجمه کهن واژه	مکی یا مدنی	اعراب
الأنبياء / 90	*...وَيَذْعُونَْنَا رَغَبًا وَرَهَبًا ...*	رَغَبًا	امید / خواهانی / ...خواستار	مکی	حال و منصوب
مریم / 46	*...قَالَ أَرَأَيْبُ أَنْتَ عَنْ آلِهَتِي*	(رَأَيْبُ) عن	روی گرداننده / ناخواهان / نمی خواهی و رها می کنی	مکی	خبر مقّم
القلم / 32	*إِنَّا إِلَى رَبِّنَا رَاغِبُونَ ...*	رَاغِبُونَ	امید داریم / پناه بُردیم / آهنگ ...کنندگان	مدنی	خبر إنّ
الشرح / 8	*وَالِي رَبِّكَ فَارْغَبْ*	(ف) اَرْغَبْ	امیدوار باش / خواهان شو / خواهش نمای	مکی	فعل امر مبني بر «سكون» فاعل «أنت





RESEARCH ARTICLE

Literary and Symbolic Analysis of the Poem "After the Thunder" by Mehdi Akhavan Sales

Mohammad Fallah Sarkarizi

PhD. Student of Persian Language and Literature, Zahedan branch, Islamic Azad University, Zahedan, Iran.

Received: 18 Jan 2015

Revised: 21 Feb 2015

Accepted: 19 Mar 2015

*Address for correspondence

Mohammad Fallah Sarkarizi

PhD. Student of Persian Language and Literature,
Zahedan branch, Islamic Azad University,
Zahedan, Iran.



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License** (CC BY-NC-ND 3.0) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

Mehdi Akhavan Sales, is one of the greatest contemporary poets of Iran who has written his best poems in the worst and most critical political periods of Iran. Although it may not be said for sure that Akhavan has been quite political, but he looked at the world with policy and foresight. His poem "After the Thunder" is a political poem that narrates the conditions of people after being defeated in the national movement. Since few researches have been conducted about this poetry which illustrates the coup of "28th of Mordad" in a symbolic way, therefore this subject is chosen to be studied. This is an analytical and library research and exclusively studies the poem "After the Thunder". The findings indicate that the poem "After the Thunder" is symbolic and political and has novel compounds and a Khorasani language, figures of speech have been used nit as well.

Key words: Akhavan Sales, Then after the Thunder, Analysis, Symbol

INTRODUCTION

The top of Mehdi Akhavan Sales's poetry art is manifested in the fourth poem book called "From This Avesta". Undoubtedly, this collection includes the best poems of him which were written in late Iranian year 1330 (1952) and early 1340 (1961). Akhavan's linguistics structure in "From this Avesta", has a significant link to the language of Khorasan poets and brings new style of Khorasani through integration of today's language with the old one. This language shows its narrative frame very well, and the best poems of Akhavan, especially in "From This Avesta" are those poems that were written in a narrative language. In the contemporary poetry, Akhavan is the best person who narrates the historical events of Iran in 1330 (1952). Although these narrations are not based on historical documents





Mohammad Fallah Sarkarizi

and cannot be cited on as the historical sources but if we want to know the situation of Iran in 1330 and the status of intellectuals after the coup of 28th of Mordad in 1332's, Akhavan's poems are perhaps the best reference among poems.

In these poems, hopes, dreams, protests, rebellions, repressions, surrenders and failures of the Iranian intelligentsia in 1330 are expressed one by one through the poet's perspective. The poem "Then after the Thunder" of Akhavan which was written in February 1961, are in fact the description of the poet's horror nights. At those night's his yields have not been kind to each other. The poet salient sleep and peace, and some nights that he could sleep, nightmares always came to him. Even in sleep, he saw no good dream storage the cruelty from his mind for a few minutes. Therefore whether in sleep or in wake fullness, Akhavan thinks about the historical situation of human which is surrounded with sorrow and oppression throughout their lives and poet's dreams are wild waters. This metaphor is due to his dreams each night, which are frightening and wavy like seawater. The dreams are likened to roaring waves of the sea because as far as the eye can see there can be seen a caravan offer and delusions moving around. This dream is different from dreams of "Makhmal Avayan" (velvet voices) i.e. lyrical poets.

Naderpour in his "opiate dark dreams "recognizes his beloved who has showed up with" blue eyes" she is "descended from the Moon" and "her limbs has got the color of a crystalline morning by the moonlight caress" but the dreams of Akhavan is of another type. (Dastgheyb, 1373: 244 and 247)

Analysis of the poem "After the Thunder"

It seems that the poet by illustrating the main idea of the poem in initial part of the poem, tries to attract the attention of the reader to the events that have occurred and the power of the incidents have affected his mind and soul to the extent that the poet becomes alien with the sleep and whenever he fell asleep, he had nightmares and hallucinations.

But you do not know what nights I stayed awake until dawn
My eyelids were not kind to each other even for a moment
In privacy I had a pleasant sleep
And occasionally that I fell asleep at nights
There came no aura or a flower to me
In the brightness of searching for flowers

In one of the dreams, the poem sees the wolf with an injured neck, and a hyena which gets its head out of a buried carcass and oblivious to the wolf rubs his snout on the soil. The wolf here gains a positive aspect like the poetry "dogs and wolves". In fact, Akhavan Sales unlike conventions of the society in this poetry and the poem "dogs and wolves" has demoralized and by illustrating this portray of wolf, makes it a symbol of freedom and fighters who always sacrifice their lives for freedom and justice, but never surrender for the enemies' demands. The difference is that in here the hyena has come against the wolf, and is a symbol of rulers and regime mercenaries. Then he faces two dead hands which are cut from the elbow and gives the dreamer a barrage of face slap, then he escapes to the open doors but a bloody and anonymous hand closes the door before him. Then an old woman (owl and magic) arrives and laughs out loudly and shows the doors which are sealed with a bloody hand, and then points to him threateningly and orders him to sit down with her and play chess.

Then arrives an old woman (magic and owl)

Laughs out loudly
And shows me the closed doors, sealed with bloody hands
His forefinger moving to scare
Says sit down. Chess (ibid: 42)





Mohammad Fallah Sarkarizi

In the following the poem describes the losing of narrator in chess game through the magic words and then a herd of Bishop, Knight, Rook move on him like a thunder. Then he jumps out of the bed and relaxes himself by inspiring himself that it is just an imagination, that magic old woman who is interpreted as "yellow haired old woman" in the next paragraph shasa unique personality and is a metaphor of British colonialism and the poet is representative of the twenty-thirty fighters who attempted to gain victory and freedom.

The poet knows that if he hope so "smile tomorrow morning," the party lyrics which is about the victory of fighters is not relieved.

The crying baby will not relax due to this nightmare
 Then I comfort myself that it was just a dream
 But
 If I get relaxed
 by expecting the smile of tomorrow morning.
 The crying baby by the shock of nightmare
 will not be relieved in any arms and lullabies (ibid :43)

The poet remembers that in the field of chess (here it means politics) has been competing on the roof of the house and on a dark rug with a yellow haired old woman that looked like his wife a lot, he didn't know that whether it was night or day, but he thinks that there was too much light in his neighbor's house, and still doesn't know that whether they were the light of day or lamps! The old woman is that witch who has disguised herself like the others. "Neighbor's house" is undoubtedly the former Soviet Union which was paradise on earth to the fighters of those days. There for no crime is attributed to it and says that in neighbor's house it was whether a lamp or it was day maybe, or neither of them ... however, he sees light in the neighbor's house.

Just once
 It was night and its darkness
 Or daylight, or when, I don't remember well
 But I think a lot of light
 I saw in the neighbor's house
 It was full of lamps, perhaps it was day
 Perhaps neither of them
 On the roof of our house, on a dark and gloomy rug
 With a yellow haired old woman
 Who looked like my wife a lot, I was overwhelmed in playing chess (ibid., 1384: 43)

The fight between them becomes tough and hard. Poet who is awake and alert, with a bit of luck, proudly defeats the "yellow haired old woman" in his repeated attacks, he is constantly frightened with an unknown fear, as if his eyes or hands is going to betray him. The poet's hand or eye is the metaphor of his close fellow fighters on 28th of Mordad, who brought up a bitter and heavy defeat by their betrayal. The poet's first victory in chess refers to the temporary victory achieved in 25th of Mordad, 1332 (August 16, 1953) which was defeated by the court conspiracy which was designed by Zahedi and led to the escape of Shah out of the country and the withdrawal of British Diplomacy and the Rise of Mosaddegh. Mosaddegh's government held a referendum to dissolve the National Assembly in Tehran on 12th of Mordad (August 3rd) in Tehran and other cities on 19th of Mordad (August 10th). It resulted in the announcement of dissolution of parliament by Mosaddegh's government and the promise of 18th period of elections after the amendment election association was on 25th of Mordad (August 16). (Katouzian, 1372: 410). Perhaps that is why the poet sees no Shah in the opponent's area and it is for this reason that Shah along with Sorayyagoes to Baghdad and Italy from Ramsar on 16th of August and then disciplinary governor of Tehran determined a hundred thousand award for the arrestment of Zahedi. (Ibid: 410). The opponent who is now the poet's wife shows him the





Mohammad Fallah Sarkarizi

Rooks and says checkmate these if you can. The Rooks can be a reference to Shah's army and a little bit farther a yellow parrot repeats the same with an alien and cold accent. After a while a thunder hits and rain suddenly showers down, the yellow parrot can be Shah due to the yellow robes of his army, Shah knows that he repeats whatever the old colonialism says and he does not own any independence of thought (Dastgheyb, 1373: 251)

In the final moments of the game
 Suddenly my wife, my terrible chess opponent
 Endless chess and victory
 Laughed out loudly that shocked my back
 It made me laugh a little
 I saw she has no king
 You said I was dreaming (Akhavan, 1388: 43)

The old woman who showed up as the poet's wife in the earlier section, takes out a dead horse among the casualties and shows the poet the edge of the sky between the South and East. Then a frightening shadow of a cloud is made. The weepy woman while rubbing her hands together, in response to the poet says hatefully: "You will see so soon that a thunder roars between the South and East and a torrential rain starts falling, and everyone runs under a roof or umbrella. But the poet and his wife are caught in the rain on the roof and on the dark carpet, the riders and horses and pedestrians are killed and chess arena is changed into a blood pool. This scene is reminiscent of army tanks of Shah and Royal Guard in the streets of Tehran on the morning of 28th of Mordad, and the people who had gathered in the streets group by group.

The thunder blasted
 Between the South and East
 A lightning hit
 Now the rain was showering
 Whatever and wherever was wet
 Every one escaped under a roof, didn't care whose roof it is
 Or under the umbrella of the Devil
 I'm on the roof, on a dark carpet with my wife
 I was caught in the rain
 I think I shed some tears (ibid: 44)

Coup of 28th of Mordad happened, Mossadegh was arrested and Zahedi, who has gotten out of his hideout became in charge of the presidency.

On 28th of Mordad Shah returned to Iran, doctor Mossadegh and former Chief of Staff Brigadier General Riahi were put into trial in army military court and all political movements, Tudeh Party and its military organization, and the National Front were suppressed. Students protests at Tehran University against the visit of Richard Nixon (Vice-President of United States of America) to Iran and the opening of the British Embassy was suppressed by the police. After which three fighters students were martyred. (Katouzian, 1372: 410). The events after Mordad 28th, one after another, caused the formation of bad images in the mind of the poet. The oven and the light dies down and the darkness prevails. The poet wonders who else would lose chess in the rain and on the dark carpet? And lamented to all the deployments and forts, the rain still continued falling and the gutters were crying out, the high ceiling of wishes collapsed, the poplar garden and its firm trees turned into a cross on which the fighters were hanged. The tearful poet remained on the dark carpet of poverty and misfortune on the roof. As if the cloud was weeping on him and in him. Thunder and rain were like barrage of bullets that shot public protesters and slaughtered them. And the dark carpet was the place where the poet witnessed the events and it was a crystallization of a society in which the darkness, ignorance, tyranny and oppression has overshadowed. The night is present in the entire of the poetry and





Mohammad Fallah Sarkarizi

its narrative feature due to the complexity, difficulty, darkness and cold space represents the intellectual influence of Nima in the creation and introduction of these poems.

CONCLUSION

This poem is not about the defeat of a stage, but a comprehensive defeat. Actually Akhavan is not a reporter poet, but the poet of defeats. Akhavan believes in the periodic history of defeat rather than evolutionary history of deployment and fight and then defeat. This sequence is repeated many times in the lyrics of Akhavan including "inscription, the story of Sangestan town, and suddenly the set of which star" are in this category. Many symbols were found in the present study and the most important symbols include magic, owl, Zal, night, chess, which are manifested more in poetries with political aspects.

REFERENCES

1. Akhavan Sales, M. (2003). From this Avesta. Tehran: Zemestan Publication. Twelfth edition.
2. Dastgheyb, A. (1994). A glance at Mehdi Akhavan Sales. Tehran: Morvarid Publication. First Edition.
3. Shamisa, S. (2004) Guide to Contemporary Literature. Tehran: Mitra publication. Third edition.
4. Katouzian, M. (1993). The Political Economy of Iran (Mohammadreza Nafisi, Kambiz Aziz Trans.). Tehran: Markaz Publication. Second edition.
5. Falah Sarkarizi, M. (2002). Aesthetics of Akhavan poetry. MA thesis. Islamic Azad University of Birjand.





The Idea of Pantheism in the Poetry of Bidel Dehlavi

Habib Jadidol-Eslami Ghaleno^{1*} and Mohammad Fallah Sarkarizi²

¹Faculty Member, Zahedan branch, Islamic Azad University, Zahedan, Iran.

²PhD. Student of Persian Language and Literature, Zahedan branch, Islamic Azad University, Zahedan, Iran.

Received: 18 Jan 2015

Revised: 21 Feb 2015

Accepted: 19 Mar 2015

*Address for correspondence

Habib Jadidol-Eslami Ghaleno
Faculty Member, Zahedan branch,
Islamic Azad University,
Zahedan, Iran.



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License** (CC BY-NC-ND 3.0) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

The philosophical-mystical idea of pantheism has had a noticeable manifestation in the literature of Iran and the world. As a poet who is rooted in the rich literature of Iran on the one hand and in India's ancient and rich culture on the other, Bidel Dehlavi has a particular interest in this idea so that the foundation of his poetic ideas are strongly influenced by it. In this study we investigate Bidel's viewpoint to the theory of pantheism and his manner of expression and interpretation in this regard, and his view will be compared with the views of elders of poetry and mysticism. This is a library research and is according to mystical pantheism.

Key words: pantheism, plurality, poem, Bidel Dehlavi

INTRODUCTION

Although nowadays pantheism is known as a mystical - philosophical theory and expansion and development of this theory is attributed to Mohyeddin Arabi, but the origins of this theory is much older than its proposal by Mohyeddin. In ancient Persia, it was believed that "the first issuer is Bahman of Nourol-Anvar... or the absolute entity, Ahura Mazda and God. But the later stages after Aghrab light, respectively are Cairo or Amesha Spenta lights, then longitudinal lights and thereafter Deities and transvers lights and continues descending, will gradually lead to increased darkness "(Razi, (2000): 230-231) and they feature various proportions of three substances in terms of their natural resources and if this plurality veil which attributes distinct characteristics to objects and they get rid of the power domain of "Gunnar", i.e. get released of three progressive, expanding, and descending substances, there will be only Prakrti and nothing more "(Shayegan, 1996, Vol. 2: 580). In Indian religions and philosophical schools of





Habib Jadidol-Eslami Ghaleno and Mohammad Fallah Sarkarizi

thought there have been this belief about the similarity of objects during the plurality that "If we consider the plural objects of the world, we will realize that they share common traits and qualities.

One of the motifs of Vedic thought is that "It's the world itself. It is everything that it is, was and will be." (Kakayi, 2002: 122) and some western scholars believe that "the most philosophical form that we could find in the East is established by Hindu thinkers." (Ibid: 122, quoting from Adony)

"In ancient Greece and ancient Rome the record of pantheism can be followed in pre-Socratic philosophers. All pre-Socratic philosophers apparently believed that they could find an underlying unity beyond the plurality of worlds" (ibid: 117, quoting Mitchell ion).

"The most influential form of pantheism in Greek - Roman context is Stoicism. The followers of this movement believed that there is only one Logos (Cosmiclogos) or a universal spirit. They matched the Logos or the spirit with the basic elements of nature (earth, water, fire and air). "(Ibid: 118, quoted in Oran). In Christianity and mysticism also this idea can be followed up given that a Holy Spirit is considered for Christ and there's a belief about his ascension and joining with God.

In Christian mysticism, they have mentioned the supreme presence of God, Union with God, and finally Mystical Union in their own historical interpretations." (Ibid: 107, quoted by Louise Daper)

Pantheism in the Opinion of Mystics and Scholars

Hallaj

In the realm of mysticism, "Anal Hagh" is the most famous statement of which the smell of unity is emerged. Hossein-Ibn Mansour devoted himself to this statement of himself and submerged himself in the ocean of the beloved and removed his own veil, so that all of him turned into "He". He stood against the so called Sufis and scholars, took off his cloak from his head and threw it on the ground and said, "All these customs shows dependency and habit, and both are an obstacle for progress." (Halabi, 1998: 304) Louis Massignon believes that Hallaj's thoughts are originated from the ancient Jewish and Christian traditions and writes: "While Hallaj describes the divine nature as abstraction and transcendence, but he had never thought that the knowledge of God is impossible for man. He talks about the Jewish and Christian tradition that says God created man in his own shape, he created the basis for his theory of the creation of the world that its complementary theory is the issue of human. The human became God through hypocritical characteristic of mysticism, and finds in himself the divine reality "that God casted upon him." (Nixon, 1998: 63 Manghoul- Altavasin: 129)

Mohyeddin Arabi

Ibn Arabi is the most famous theorist in the field of Pantheism and his thinking is based on the principle that "An independent natural existence is bound to the existence of the truth and the existence of a virtual, extra, credit, dark world, and the darkness of the truth existence is dependent to him and is thus inherently unstable, i.e. that is all illusion and hallucination." (Jahangiri, 2003: 428)

Shabestari and Interpretation of Lahiji:

Shabestari was completely familiar with the works of Ibn Arabi and was affected by his ideas to a large extent. This influence is completely obvious in the poetry "Golshan Raz" and Lahiji has done a strenuous effort to describe it. It is in line with explaining the idea of the pantheism that Lahiji writes in interpretation of the verse:





Habib Jadidol-Eslami Ghaleno and Mohammad Fallah Sarkarizi

He saw the world as a credit issue
Because it's united in Surrey numbers

"A mystic person in God's way sees all the pluralities to be dependent on a unit existence and knows that except for a unit existence, the other essences are not true and that the manifestation of all other pluralities have credit to that truth and otherness of the single objects is just a credit and the effect of the absolute unit existence in the world plurality is like the effect of unit on numbers and the plurality of numbers actually is the repetition of units and the proportion of the existence of a unit with the plurality levels in variations of the emergence is exactly like the proportion of units with numerical levels '(ibid.: 12-13)

Molana

Professor Homayi says, "in short molavi also believes in pantheism and the emergence of unity in plurality and the other minutiae and details of this issues, but not to the extent of quality that the extremist followers believe. Molavi also says:

There is no one in the world but God anything you see except him is an idol

And knows the true existence as a sea and all aspects and manifestation of the universe as the waves of the sea and foam:

The movement of the sea, day and night how odd you only see the foam

Molavi mentions all of these things but never says: we are of God or God is everything or objects are manifestation of God, and the world is all truth, and such words, although there be a mystical gathering, he doesn't state so and it indicates that his heart doesn't believe these ideas and his soul hates such phrases. "(Homayi, 1981: 236-234) although professor Homayi believes that Molana's opinion about pantheism is not consistent with Mohyeddin Arabi's ideas, but by looking at the verses of Masnavi we can see that he has used such parables of Ibn Arabi i.e. illusion, sea, and foam to explain his ideas.

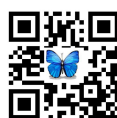
Attar

At the end of the trip of the birds to reach Phoenix in Manteghottayr, when 30 birds reach to the gate of Phoenix both the group of thirty birds and the Phoenix are seen as one and only one and it can be an encrypt and sign of pantheism and a kind of understanding of this idea:

They saw themselves as a complete Phoenix The Phoenix itself was always like thirty birds
If you looked at both of them they were both more and less the same
It was that, and that was this one in all the world you won't hear so
(Attar, 1995: 235)

Zarrinkoob in two slightly different look, knows Manteghottayr to be an encoded story, the spiritual travel of human from the plural world to the united world (Zarrinkoob, 2000: 258). And in another place denies any possibility regarding Attar's belief about the pantheism and writes:

"At the end of every year the flight and search of the thirty birds is ended, but in there they see themselves confronted with such grandeur and richness which surprises them... the beauty and dignity reveals itself, his grace is not effective. Then thirty mortal and homeless birds, could see the face of the Phoenix through the light which is provided by Phoenix itself, and when they look at him, everything is Phoenix and there are no thirty birds. They are told to fade in me so that you can find a way back in yourself again - after that all disappear in Phoenix, and the





Habib Jadidol-Eslami Ghaleno and Mohammad Fallah Sarkarizi

survival after death is obtained. This is the point that removes any concern about the teaching of the pantheism in Attar's word and prevents the notion that creation, truth and truth, is the creation"(Zarrinkoob, 1999: 92-91)

However the verse

It was that, and that was this one in all the world you won't hear so

Also the goodness of Hallaj that's mentioned by Attar in Tazkeratol- Olia, tempts us to think of him as a pantheist. It's better to say that when we speak of pantheism we shouldn't be reminded of a specific concept, since pantheism can have several meanings and thus lead to different interpretations. Perhaps it can be said that Ibn Arabi, Molana and Attar, each have expressed his own interpretation of this theory.

Since the mystics' opinions about the pantheism weren't mentioned therefore we haven't studied it in the poetry of Bidel Dehlavi. The purpose of this study is to explore the idea of pantheism in the poem of Bidel Dehlavi.

Pantheism in Bidel Dehlavi's Idea

Pantheism is one of the most central and recurring themes in the poem of Bidel that if we don't consider and pay much attention to it, many issues of his poem will remain unopened. The idea is expressed in two forms in the poetry of Bidel: sometimes it has directly became the subject of a poem or a verse and sometimes it has influenced the basis of the poem's idea as the mind background. The idea of pantheism in the mind of Bidel is fed by two sources: first, Hindi thoughts and the other is Islamic mysticism, especially the teachings of Ibn Arabi. Professor Nabi Hadi writes in this regard: "However, the effects of Ibn Arabi seems quite clear in the formation of the Bidel's thoughts and in his mind there can be seen in abundance the elements which are rooted in the principles of the Greek doctrine and ancient Indian spiritual elements,"(Nabi Hadi, 1997: 117) Zarrinkoob also writes about the influence of Ibn Arabi on Bidel: "What is reflected in the lyrics of Bidel other than love and personal pain, which blends Molana and Hafiz's experience with the thought of Ibn Arabi and Jami and makes his poem a mirror of wisdom and a background for mystical lesson and thought ."(Zarrinkoob, 2000: 310) Now considering the poetry of Bidel, we now investigate the issue of pantheism in his poetry and compare it with the views contained in the preceding pages:

Bidel explicitly believes that his basis of mystical congenial is based on pantheism:

Nothing except unity can help our mystic effort
Our skirt is like a field, the flower of our skirt
(Biddle, 2002: 98)

And uses the famous examples of Ibn Arabi and Molana, imagination and sea.

God's Imagination

Making the world full of flowers is by his oneness
an individual doesn't have anything but imagination.
(Ibid: 235)

Just as people fantasize in loneliness, the world also is the result of fantasy of united necessary being, and does not have an independent truth. Bidel in another example believes that the relationship between the proportion of plurality with unity as the proportion of imagination to the individuals. The person is one and the imagination is plural.

plurality is not eliminated from unity as fantasies of a lonely man (Ibid: 7)

Salahoddin Saljoughi comments about the apparently dual relationship of existence, that is, unity in diversity, as well as mystical simile of imagination, and says: "The existence is deemed to be both creator and creature. When it is in the





Habib Jadidol-Eslami Ghaleno and Mohammad Fallah Sarkarizi

Etlagh universe it's defined as the creator and when it's in Ta'ayyon universe it's thought to be in the form of creature. These images themselves don't have true existence the more flat mirrors who are saints of God, and their face is distinctive, so they represent a better and cleaner image of the God

The gist of the idea is that Ta'ayyon world has a secondary existence and the real existence is for the unique nature who is above all things, and Sufis always make the opposite as the original imagination. "(Saljoughi, 2001: 24)

Sea Waves

Another example that commonly exists among Sufis to explain the issue of pantheism is the example of wave and water wave which Bidel uses it in the following verse in the form of water and whirlpool:

Truth is not separate from the creature and vice versa
whirlpool is in the water and water in the whirlpool forever
(Bidel, 1381: 44)

As the whirlpool is only a different form of water, creature is not separated from the truth and is a manifestation of the faceless truth which has joined to the plurality group by accepting determination and it can regain its unity by fading in the truth. A drop is turned into a sea if it joins the sea

In this sea, water and bubbles and wave, each have different names for the various forms of water. It will be mere insensitivity if we consider each of them as an independent existence.

Environment, water, bubbles and waves are one
why are you trying to distinct them
(Ibid: 9)

In the meantime, human is a bubble that all its existence capital is from the sea:
What is the bubble's capital except its environment?
your water is ours, and your air is ours.
(Ibid: 9)

And if you listen carefully, you will only hear the sound of his blade from the sea waves:
The sound of his blade comes out of each wave
the heart is astonished whom it should rebel against
(Ibid: 202)

Mirror example

One example that has long been used to explain the pantheism is the example of mirror and image, this means that God has been likened to a person who has sit in front of several mirrors and the mirrors reflect different images of him according to the smoothness, opacity and size. These images themselves don't have true existence the more flat mirrors who are saints of God, and their face is distinctive, so they represent a better and cleaner image of the God

Plurality world is the mascot of unity credit
clusters are the mirror holder of humor of a grain
(Ibid: 456)

The world which apparently is indicative of plurality is in fact spell bounded of unity. All the garden clusters are indicative and representative of a seed. The one seed that like number one is profuse the whole of numbers, in the





Habib Jadidol-Eslami Ghaleno and Mohammad Fallah Sarkarizi

same way he is going on in the life. Bidel explicitly believes that the world is the manifestation mirror of God, though this little man can't see his glow in the prairies of the world through the intense veils of astonishment.

The world is mirror holder and astonishment of my cover
Grass has a great magnificence but the dew is rarely seen
(Ibid: 104)

When the God is appeared in the mirror of creation, the color is determined, the mirror is faced to the mirror and the truth of the existence takes a color of plurality:
When your colorless manifestation appeared in the heart
The mirror represented in hand and knocked the door.
(Ibid: 460)

Bidel in the following verse believes that the relationship between the existence to God is like an image which has fallen in water. The water here has the same function and meaning of the mirror:
Unity of our self is contaminated accusation
Image is in the water until you are out of it
(Ibid: 141)

Now by considering the multiple meanings of mirror element in Bidel poetry and the poet's use of this element in explaining the issue of pantheism and according to the surreal environment of Bidel poetry it makes it easier to understanding the following verse:
I didn't recognize your face from my own
I have paid the price for the mirror
(Ibid: 955)

Bidel says in this verse that I have smoothed and decorated my heart like a mirror in order to deserve your manifestation. And when you manifest in it, I'm not me, and it will be all you, this oneness is such that I can not distinct myself from you. This claim is similar to the statement of Ba Yazid who said: ((I came out of Ba Yezidi like a snake out of its skin O... hold on, I saw the lover and the beloved as one entity which could be seen as one in the unity world and he said he went to God and they made God in me, In me, it's you who are me)) (Atar, 1991: 189)

Bidel's heart is surprised by the fact that in the house of existence wherever he looks he sees no one but himself, but this self does not exist and when he looks carefully he sees the image in the mirror. Therefore he sees human and existence as the image of God manifested in the mirror:
The heart is stunning wherever we look
There's nobody home, just a mirror and I
(Bidel, 2002, 914)

And finally concluded that we are all him and he is all us. We are all hidden and found all around. We are with ourselves and separated from ourselves " there's no us and you and there is no mirror but we are our mirror":

We are alien or familiar
We are not but he, he is not but us
We were not found to cover ourselves
We were not hidden to be discovered
Before whom should we mourn, whom should we ask
It's a lifetime that we are separate from ourselves
Why think of two, who is me and you
There's no mirror we are self-manifesting





Habib Jadidol-Eslami Ghaleno and Mohammad Fallah Sarkarizi

(Ibid: 869)

The poet believes in pantheism, knows his existence as naught and dependent and thinks of it to be the same as the step or a trace:

My bad quality has the characteristic the steps
You should prance to see me under yourself (ibid: 88)

And argues that if the role of the step or non-existence, make itself clear like a mirror, it'll be capable of manifestation, and it will reach to a level of mirror which the Jam Goblet has not reached to yet. Then he discovers that his vague existence is dependent on another one as the picture or a line that a pen draws is not a thing apart from the pen:

If you make your step into just one moment
And ground the desire of Jam Goblet
The vague retrospective existence of ideas
Didn't see the cream nor the digits
(Ibid: 109)

Hallucinations of the Existence

In another interpretation, Bidel believes that existence is just an illusion. The basis of this idea is based on two foundations, however, both are in fact two sides of the same coin. First, because he believes that the real existence is just for God and knows no other existence except him, and considers other existences to be vague. Secondly, as it was indicated earlier, the mystics believe that existence is an illusion, and based on the sequence of illusion and fantasy, these lines can be derived from this idea:

Vague existence had no proof other than negation
our going got dusty of our lap (ibid .: 105)

This means that to prove the vague and non-existence of our existence we must reject it. In this way we can be a true existence by connecting to the real existence. This contradiction or paradox used by the poet in the poem is completed with the ultra-real (surreal) picture.

If something is going to be proved by negation it will be like by "the" lap there is left dust "on" the going instead of "on" the lap there's dust "by" going. In short, the real existence is made of its existence nature. He names such existence as hallucinations elsewhere:

It's such a surprise that you are the bowl and utensil of hallucinations
The one who is not the bowl of existence is this fairy saddle enamel wine
(Ibid: 143)

In other interpretation, states that the indicative of our existence is a name of existence as the sun rays that doesn't have independent existence, and is only distinctive from the sun by its name
There's nothing but a name for our existence
Our hunt is like a voice to our livestock's ear

(Ibid: 111)

In the second hemistich of the above verse the poet emphasizes that our relationship with God, is like that of the sound to the hunt, meaning that if an eye or an ear try to hunt and find our reality, it would fail to do so, the result is like a hunter who would only hear a sound of the hunt sound, that would be an impossible job.





Habib Jadidol-Eslami Ghaleno and Mohammad Fallah Sarkarizi

Hierarchies of Existence

One of the issues raised in the discussion of Pantheism, is the hierarchies of existence. The existence which starts from the eternal source, is hierarchical. These hierarchies include forty degrees which begins with the wisdom and ends to human. (Lahiji, 2002: 22), Bidel has likened these hierarchies to a person who has bent and says that if someone bent his upright figure then we won't count that person as two people. Even though hierarchies moves in a downward path from the wisdom to human, it does not affect the truth of God. The hierarchies of existence are actually transversal to the true nature of existence, and their plurality is nominal.

The complications of plurality are nominal to the unit essence of us
It wouldn't question the uniqueness of God if the stature becomes two

A related issue which is suitable to be proposed is that in discussions and quotations by Bidel and others, the intellectual and philosophical color is dominant on poetic madness and selflessness i.e. the discussion is more intellectual rather than poetic in its pure form. However, in cases when the mystic has gone deep into spiritual discovery, will not tolerate none of these arguments in its philosophical and intellectual frame.

when Bidel in this poetic and mystic selflessness overcomes his self-consciousness, argues that euphoria and recklessly paying attention to pantheism and plurality is madness and then dismissive of everything said earlier he wrote:

And in thought it's a play and plurality of madness
This sentence is freedom from want and not paired and arched
(Ibid: 1122)

Finally, denies any words and even philosophical argument about the pantheism and plurality with the credit that the speaker has implicitly considered an existence for himself, and finds his final dream in his space:

Neither pantheism nor plurality I sing
I am mortal, mortal, mortal, mortal
(ibid: 995)

CONCLUSION

The results show that Bidel's concern for addressing this issue arises because:

One is the precedence of this theory in Iranian and Islamic roots and the other is the ancient and old culture of India, Hindi and Islamic mysticism, especially in view of pantheism they get close together, however, the general spirit or soul of the thoughts come from Hindi thoughts. Each particle of the science of possibility is full of spirit and all creatures represent his appearance.

This point forms a specific subject in writings of Bidel. When Bidel was busy touring Mivat Mountains, he understood this fact. By comparing Bidel's ways of expression regarding the issue of pantheism of the other Persian poet we can say that, though his view is influenced by them, but his sensitivity and concerns are more than them. On the other hand, maybe Bidel in proposing this topic, has been following social ideas except for the motives of mysticism. The same ideas which make an excuse out of the war of seventy-two nations believes that its all the result of failure in achieving the truth maybe by invoking this issue he wants to aware human to his truth so that they define a meaningful identity for themselves through this path and leave all the unfounded racial, religious differences





Habib Jadidol-Eslami Ghaleno and Mohammad Fallah Sarkarizi

There's no dust out of low and high waves of the sea
The truth is separate from blasphemy and religion
(Bidel, 2002: 513)

REFERENCES

1. Ibn Arabi, Abu Abdollah Mohammad ibn Mohyeddin (1993) Fosous Al-Hakam, Abolalla Afifi. Tehran: Tehran University Publication, First Edition
2. Bidel Dehlavi, Mirza Abdol Ghader (2002). Koliat Divan, corrected by Khal Mohammad Khasteh, Khalil Allah Khalili, Tehran, Foroughi Publication, Fourth Edition
3. Jahangiri, Mohsen. (2004) Mohyeddin Arabi, Prominent figure in Islamic mysticism. Tehran: Tehran University Publication, Fifth Edition
4. Hafiz Shams al-Din Mohammad. (1992) Divan Hafez, corrected by Ghazvini – Ghani Tehran: Asatir Publication, Fourth Volume
5. Halabi Ali Asghar. (2002). Principles of Sufism and Sufis circumstances, Tehran: Asatir Publication, 1st Edition
6. Hallaj, Abou Mansour. (1989). Divan Hallaj, Valiollah Yousofi. Tehran: Sanayee publication. First Edition
7. Razi, Hashem, (2000) Khosrowani wisdom, Tehran: Bahjat Publication, First Edition
8. Zarrinkoob, Abdolhossein (1999) Sound of Wings of Phoenix, Tehran: Sokhan Publication, First Edition
9. (2000) Searching Sufism in Iran, Tehran: Amir Kabir publication, Sixth Edition
10. Caravan of Helle, Tehran: Elmi publications, twelfth Edition
11. Saljoughi, Salahoddin. (2001) Review of Bidel, Tehran, Mohammad Ebrahim Sharifi Afghanistani, First Edition
12. Shayegan, Dariush. (1996) religions and philosophical schools of India, Volume 2, Tehran: Amir Kabir Publications, Fourth Edition
13. Attar Neyshaboori, Farid al-ddin. (1991) Tazkeratol Olia, Corrected by Mohammad Estelami, Tehran: Zavvar Publications, sixth Edition
14. Manteghottayr, Seyed Sadegh Gowharin, Tehran: Elmi and Farhangi Publications, Eleventh Edition
15. Kakaie, Ghasem. (2002) Pantheism in Ibn Arabi and Mayasterakhart, Tehran: Hermes Publications, First Edition
16. Lahidji, Shams al-Din Mohammad. (2002), Mafatih Al-ajaz in description of Golshan Raz, corrected by Mohammad Reza Barzegar Khaleghi, Effat Karbassi, Tehran: Zavvar Publications, Fourth Edition
17. Molana Jalal al-Din Mohammad Balkhi. (1994) Masnavi Manavi, Reynolds Alan Nicholson, Tehran: Pourya Publications, First Edition
18. Nicholson, Allen Reynolds (1998), Islamic mysticism and its relationship with man and God, (Mohammad Reza Shafei kadmeh, Trans.), Tehran: Sokhan Publications, First Edition
19. Homayee Jalaloddin. (1981) Molvinameh, Tehran: Agah Publications, Fourth Edition.





Forecasting the Development Process of Wind Turbine Technology Using Process Analysis Method

Sajjad Rahmaani^{1*} and Mohammad Hassan Fazli¹

¹Ms Student of Technology Management, Iran University of Science and Technology.

Received: 18 Jan 2015

Revised: 21 Feb 2015

Accepted: 19 Mar 2015

*Address for correspondence

Sajjad Rahmaani

Ms Student of Technology Management,
Iran University of Science and Technology
E-mail: Sajjad_Rahmani@ind.iust.ac.ir



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License (CC BY-NC-ND 3.0)** which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

Nowadays, paying attention to the renewable energy resources has become one of the policy priorities in many countries, especially in the developed countries; firstly, because of the increasing environmental pollution and the climatic changes, and secondly, due to the reduced supplies of fossil fuels. The broad range of environmental damages and environmental commitments has obliged the developing countries to enter into this field. Considering the fact that renewable energy industry has newly developed, entrance to the field of development of these technologies can be a good opportunity to reduce the technological gap between the developing countries and the developed ones. Because of the advantages of wind energy, compared to other renewable energies, wind energy potential in the country and also, the growing process in production capacity of wind turbines in Iran and also growing trend of Iran's capability in producing wind turbines, it is worth planning to develop this technology. Forecasting technology is one of the primary tools and requirements of this planning. Therefore, it is tried to present an overview of the future of the industry of wind energy, using process analyze.

Key Words: Technology, Technology forecasting, Process Analyze, Wind turbine

INTRODUCTION

Today, environmental pollution has become one of the major challenges facing mankind and one of the global policy making priorities. [1] The amount of greenhouse gas emission is one of the most significant pollutions, which has lots of side effects on the environment. The most greenhouse gases emission is related to energy production of fossil fuels;



**Sajjad Rahmaani and Mohammad Hassan Fazli**

as %84 of greenhouse gas emission in the world has been for the energy production, in 2009. [1, 2] In Iran, also, more than %90 of greenhouse gases is produced by the energy sector. [3] Also, the highest rate of greenhouse gas emissions is related to developing countries, to the extent that according to the projections, these countries will produce %69 of the greenhouse gases by the year 2040. [2]; the developing countries play a vital role in preventing this crisis, especially in the energy sector, in the following years.

According to the mentioned challenges, paying attention to the renewable energy resources and the policies of the gradual elimination of fossil fuels gains increasing importance and the projects related to the reduction of pollutants have changed from the project mode to a strategic mode [1]. Now, paying attention to the environmental issues is among the factors affecting the economic growth and is considered among macro-economic indicators. So, policy making on environmental issues and emphasizing on planning to reduce pollutants, especially in energy section, are among the legal and economic requirements of all the countries since in some international treaties such as UN commitment on climate change, the countries are committed to cooperate in reduction of greenhouse gases emissions. [3]

However, developing countries including Iran, due to economic constraints and other limitations in the field of international relations, and also lack of international obligations in the field of reducing pollutants, are not yet strong in this field and do not have long-term planning for it. Therefore, Iran requires a technology planning in this context and the first step in this regard is forecasting technology.

The technology of producing electricity from wind power has had a more and faster growth than other technologies of energy production from renewable resources because of several reasons including less cost and more ease of use. In Iran, also, the production of wind electricity has been paid more attention than other renewable energies and there is a more favorable condition for its development.

With a brief analyze of global trends of the development of the technology of wind turbines and growth of the usage of wind energy to produce electricity, it is tried in this paper, to forecast the future of this industry and to propose the necessary orientations for Iran for entering into this technology.

REVIEW OF THE LITERATURE

Technology

In a general look, it is possible to define technology in three forms: product technology, process technology and management technology. Product technology is the knowledge that is used in the manufacture of a product. Process technology is the knowledge that is used to organize how to produce raw materials or how to provide service and management technology is the knowledge of business and is related to how to use resources efficiently to compete [4].

Although, the technology is often viewed as a hardware, but the technology is made up of several components, one of which is hardware. Other components include information (including procedures, manuals and other documentation), man (experiences, skills, tacit knowledge, creativity, etc.) and the organization (processes, management practices, etc.) [4, 5]. A specific function is realized with the combination of these components.

Forecasting technology

Forecasting technology is the continuous monitoring of the development of technologies; that leads to early detection of possible future and evaluation and approval of potential arising from it. Forecasting technology emphasizes on a particular field of technology and introduces high-potential areas. The possibility of the emergence of a new product



**Sajjad Rahmaani and Mohammad Hassan Fazli**

depends on scientific discoveries, outbreak and development condition and dissemination of technological innovations. Forecasting technology is a tool to help making decision and is introduced according to the existing problems in the field of technology. One of the advantages of forecasting technology is being able to change one-sided thinking to multilateral and interdisciplinary thinking. Another advantage of forecasting technology is creates a communication system [6].

In the general approach of technology planning, forecasting technology is considered as a link between organization strategy, and research and development which presents different ways to achieve long-term goals of organization technology. Forecasting technology can provide us a perspective of future which is the guidance for today's actions in shaping future conditions. Forecasting technology helps managers determine how technologic capability grows over time and how technology emerges as competitor, grows and propagates and replaces the old technology. In technology planning, the support of major management is very important and long-term plans of major management should lead and support research and development activities in order to support the company's goals and also, determine in which technologic zones, investment should be done. [7]

The stages of forecasting technology

Forecasting technology generically has three main stage: [6]

First step – recognition

Through Continuous surveying of new events at the time of occurrence, scientific or technologic contexts which present new functions or interesting technologies for possible future, are recognized.

Second step – Confirmation

This step includes confirmation of the time of the occurrence of these possible events and emphasizes on the products presentable in bazar and their potency in solving problems and the social and economic needs and satisfaction of the society's noticeable needs. This confirmation is accomplished on the base of a set of criteria. The resources of the studies are directed to the publications, articles, invention registration, interview, discussion with experts, questionnaires, official reports, analysis of the scientific programs and scientific workshops, analysis of the related information banks and contribution in relevant programs.

Transmitting information and application:

In this stage, the two previous stages have been merged. This stage includes especial proposals for application and utilization of calculations. The results of these analyses must be given to determinants, politicians, selected representatives of the commercial units and scientists. Also, these results can be used at the national level.

Methods of forecasting technology

Totally, the methods of forecasting technology can be divided in to two groups of heuristic and prescriptive. In the heuristic methods, the future is delineated using the science gained from the past, whereas in the prescriptive methods, firstly a desirable technologic future is delineated and then, the necessary planning for it done [8].

The studies show that one of the most effective methods of forecasting is the combination of different methods. In order to select the suitable method, forecasting technology should not be limited to one method, rather, different methods should be used according to the subject and aim and existing resources [7].

In order to select the suitable method, it is necessary that, firstly, we consider the forecasting methods in whole view. Figure 1 presents this view [6].



**Sajjad Rahmaani and Mohammad Hassan Fazli****RESEARCH METHODS**

As mentioned, there are several methods to forecast technology. In this research, according to the limitations in reaching the experts of this industry for the authors, forecasting is based on the existing information and data; in a manner that data and the existing processes are analyzed, and using the method of process analysis, the future process of industry of wind electricity has been forecasted .

In fact, in this study the heuristic method of forecasting technology has been used because, as mentioned in the previous section, most of the countries in the world are in one direction in the field of wind energy and they have differences just in details. So, the desired future of Iran can be the condition of the successful companies in the world in the present; in other words, the desired future is imaginable easily. The reason of using heuristic method in this study is that heuristic method is forecasting future by looking at the past whereas the statistics and information is fully available in the field of power generation from the wind turbine energies.

According to figure 1, the method of this study is forecasting on the basis of principle which is gained from the extrapolation of univariant statistic data.

At first, the most important processes affecting the future of wind electricity were extracted from the global leading resources. Then, based on these processes, the process was forecasted using delta method and its possibility was obtained with the probability of %90 using Prism software. In some graphs, the range of forecasting has not been shown because of insufficient data or created excessive open range.

The obtained figures can a good guide for the future planning and policy makings about the technology of wind turbines and the production of electricity from the wind.

Having a look at the situation of wind energy in Iran

Iran started to produce electricity from wind energy with the installation of two wind turbine unit imported from Denmark in 1984, in Manjil and Rudbar region. Now, New Energies Organization of Iran has two wind power plants of Binalood 30 mega-watt and Menjil 100 mega-watt under construction and development which its technical knowledge was gained buying the license from the Danish company, and it is produced by the industrial group of SADID (Sabaniru) within the country. Until the end of 2013, a total of 90 megawatts of electricity was produced from the wind turbines. It must be mentioned that the 20-megawatts power plant of Takestan, Qazvin has been launched recently which includes 8 2.5-megawatts turbines manufactured in the country by MAPNA Company.

In the table below, the statistics related to the demand for the construction of private wind power plants in Iran ,compared with other renewable energies can be observed [10].

Given the fact that Iran is now importing wind turbines from the industrial companies in Europe, the production of this product in the country can result in prevention of the outflow of foreign exchange, employment, promote technology exports to countries in the region (considering very low cost), exchange technology and other benefits. According to the prepared Wind Atlas and on the base of data gained from 60 stations across the country, the nominal capacity of the sites is about 60000 megawatts. Based on the forecasting done, the amount of wind energy is estimated economically over 18000 megawatts which confirms the considerable potential of the country in the field of establishing wind power plants and also shows that investment in the industry of wind energy is economic.

It should be noted that the Islamic Republic of Iran is a member of the World Wind Energy Council. The Iranian government recently increased tariffs purchasing electricity produced by renewable energy from the average of 620 dollars (6.3 US dollars) per kW to 1,241 Rials (US \$ 12.65) per kW, which is about one hundred percent. Furthermore,





Sajjad Rahmaani and Mohammad Hassan Fazli

in recent years, the Ministry of Energy has done a considerable effort to develop legal and financial infrastructure required for the development of the country's wind energy [11].

Having a look at the process of development of wind energy in the world

As mentioned in the introduction section, utilization of renewable energies is increasing especially in developed countries. One of the renewable energies is the wind energy which its contribution in electricity generation is increasing according to advances in turbine and wind power plants manufacturing and having a look at the existing statistics specifies the annual increase in the contribution of wind power plants in electricity production. For example, in the first half of 2014, about 17.6 GW of new capacity was installed, whereas, in similar time, in 2013 the rate was 14 GW. In 2014, the total installed capacity reached 336 GW. Asia overtook Europe. China has nearly 100 GW of installed capacity. New Brazil has been the third largest market of new turbines. International capacity has had a growth of 5.5 percent in the first six months of 2014, compared with the same period in 2013 that, this growth was 5% and was 7.3% in 2012. The top markets for wind energy in 2014 are China, Germany, Brazil, India and the United States America. China have had the largest new installed capacity in 2014 that this success has been due to the factors such as increased domestic production and the development of the existing technologies that has caused increased efficiency and reduced costs of wind power plants [12, 13].

The advantages of wind power plants can be named as follows:

- Ease of installation compared to fossil power plants
- Installation in stages and more productivity
- Small occupation of land
- Ability to operate in different capacities
- The absence of any environmental pollution
- Visual appeal [9, 10].

In continue, some existing statistics are discussed.

The following figure indicates the development of wind power capacity in the world. The horizontal axis represents the year and the vertical axis represents the annual installed capacity in megawatts. Figure 3 represents the global installed wind electricity, cumulatively.

Also, the chart below represents the process of the development of wind turbine in terms of turbine capacity, hub height (distance from the Earth to the center of the turbine blades) and the rotor radius (the radius of rotation of the turbine blades). Hub height and rotor diameter are two main characteristics of turbine according to which, it is possible to estimate the growth of capacity and its other components. The following figure represents the process of the changes in costs of investment and production of wind turbines installed on land in the recent years. The recorded price is the price of the time that the purchase or construction contract has been signed. Euro per watt is the unit of measurement.

As the mentioned issues are the most important processes of this industry, it is possible to have clearer view of the future of the industry of wind electricity. For this purpose, in the next section, the results of forecasting the processes above, are brought in accordance with the methods listed in section 3.

Forecasting the affecting processes on the development of the technology of wind turbines

According to figure 2, the graphs below show the result of forecasting the process of the wind electricity capacities which are going to be installed by 2025, annually and cumulatively. The red dots are the ones forecasted by the software that starts in 2014. The unit of the vertical axis is Gigawatt.

As seen, according to the available data and estimates of the future process, the capacity of the wind electricity will rise and grow in the world.



**Sajjad Rahmaani and Mohammad Hassan Fazli**

The next figure represents forecasting the capacities of wind electricity in the following years by the international council of wind energy. It is observed that the numbers forecasted by the authors is reasonably close to forecasting of the international council of wind energy.

The next figure orderly represent forecasting the process of increase in hub height and rotor diameter and also the range of fluctuations of every process with the probability of %90. The unit of the vertical axis in both charts is Meter.

The following figure is the forecasting of the international energy agency which has been obtained from the map of wind energy of the year 2013. As it is observed, the numbers forecasted by the authors group about rotor diameter and hub height are reasonably close to the numbers of the chart below.

Figure 12 represents the decrease process in the costs in the production of wind turbines. The number of the vertical axis is euro per watt. In the horizontal axis, the listed numbers are three-year intervals since 2009. Of course, it is obvious that the costs do not reach zero and the forecasted chart will not be linear.

DISCUSSION AND CONCLUSION

In the introduction, it was referred to the importance of the development of energy production technologies from the renewable energies. Also, the advantages of the wind energy were cleared comparing with other energies. Although the diversity of the energy production is observed as an advantage in sustainable development, [11] certainly, the gradual entry of Iran to the field of wind energy beside other renewable resources is inevitable.

With respect to the forecasted processes, the capacity of electricity production from the wind energy is increasing in the world, as it is forecasted that more than 100 gigawatts wind power plant are going to be installed in whole the world by 2025 and totally, more than 1000 gigawatts wind electricity are going to be produced in the world.

The hub height of wind turbines will reach 120 meters by 2025. Also, the radius of the rotation of the blades will rise to 140 meters which means increase in turbines' electricity production and more economical advantage of installing turbines. Forecasting the process of the construction costs of the turbines also reflects the fact that the production of turbines and electricity production from the wind energy in result, and in a close future, it will obtain the potency to compete with the electricity production from fossil energies.

According to the results presented, it seems that the technology of wind turbine electricity generation from the wind is at the beginning of its circle and the global processes will present the further development of this technology in the following years. For example, the increase in the height and radius of the turbines and increase in their capacity of production in result has not reached to technological constraints, and the decrease in the production costs supports the fact that his technology is now entering to its growth period. It is natural that other processes such as increasing greenhouse gases and global sensitivity to environmental issues and political equations and determination of countries to independence in energy, accelerate the development process of wind turbines technology.

Entrance of the developing countries to the development of the technologies which are at the beginning of their life cycle is a very suitable opportunity to fill the technological gap with the developed countries. Regarding to the fact that our country has recently gained the capability of the production of wind turbines, it seems that self-sufficient production and development of this technology can be considered a suitable opportunity for Iran.

According to the fact that the forecasted processes of price of wind electricity is decreasing and it seems that all countries, especially the developing countries, will go towards the construction of wind electricity plants sooner or later. Thus, it is forecasted that there will a good market for wind turbines in Middle East.



**Sajjad Rahmaani and Mohammad Hassan Fazli****Recommendation**

According to the fact that the role of the unpredictable factors cannot be ignored in both a specific technology's region and in macro environment affecting the development of the technology, it seems that the forecasting done should be completed by a scenario for the future of the wind energy. As one of the initial steps in developing this scenario, the authors group has ongoing efforts to meet the experts in wind electricity industry, in the country. In the next paper, various factors affecting the development of wind turbine technology will be extracted and using Monte Carlo's method, will be analyzed and, combining the results with the forecasted processes, a complete view of the future of the wind electricity industry will be presented.

REFERENCES

1. Julian Blohmke, 2014, Technology complexity, technology transfer mechanisms and sustainable development, Energy for Sustainable Development, vol 23, pp 237-246.
2. U.S Energy Information Administration, 2013, International Energy Outlook.
3. Alireza Talaei, Mohammad Sadegh Ahadi and Soroush Maghsoudy, 2014, Climate friendly technology transfer in the energy sector: A case study of Iran, Energy Policy, Vol 64, pp 349 -363.
4. Ellis L.C. Osabutey, Karen Williams and Yaw A. Debrah, 2014, The potential for technology and knowledge transfers between foreign and local firms: A study of the construction industry in Ghana, Journal of World Business, Vol 49, pp 560-571.
5. Fathiyan, Mohammad and Seyyed Hatam Mahdavi nur, 2012, Principles and Management of Information Technology), Elm o Sanat pub.
6. Mantegi, MAnuchehr and Amin Torkamaan, 2010, Providing a Suitable Model for Forecasting Soft Technologies, Case Study: Iran Khodro Co.), The fourth national conference on Iran Technology Management, Tehran
7. Ansaari, Reza, Forecasting Technology, Jump in Brightness), Tadbir Montly pub. , 17th year, No.175
8. Brian C. Twiss, Forecasting for Technologists and Engineers: a Practical Guide for Better Decisions, London, 1992
9. Iran Research Center for Renewable Energy Organization, 2012
10. Iran Association of Wind Energy Research Center, 2013
11. Iran Renewable Energy Organization, 2013, Last status of renewable energy by the end of 2012.
12. Publication of Iran Renewable Energy Organization, 6th year, No.26, May2012
13. Khalaji Asadi, Morteza and Batul Safayi, 2003, Study of Wind electricity plants installed in Iran from the Technical and Economical Points of View), 18th International Conference of Electricity, Tehran





Sajjad Rahmaani and Mohammad Hassan Fazli

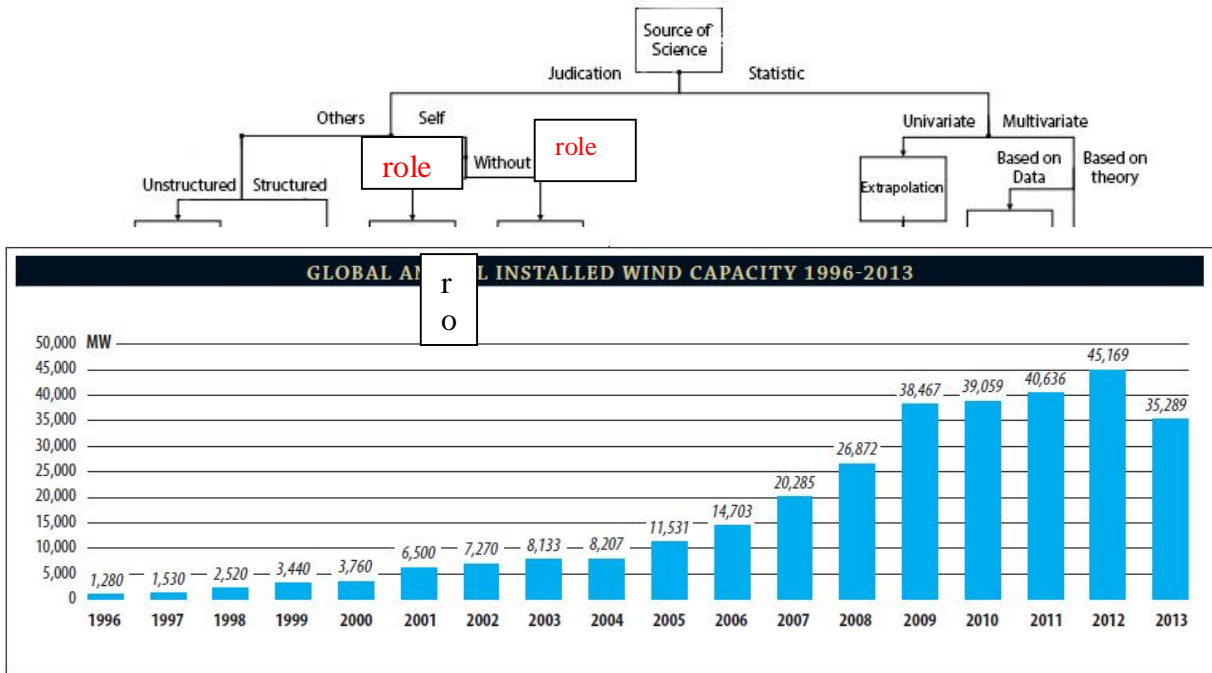


Figure1: Methods of forecasting technology

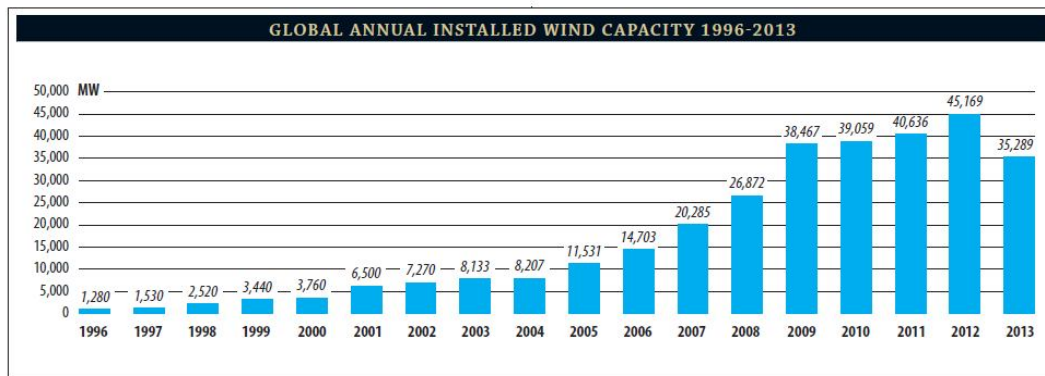
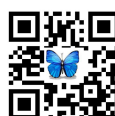


Figure2: Annual global wind electricity installed capacity (source: GWEC)





Sajjad Rahmaani and Mohammad Hassan Fazli

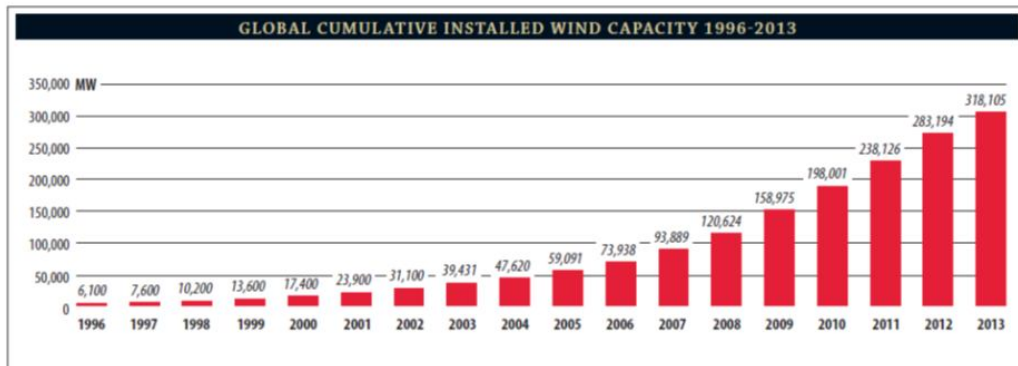


Figure 3: Cumulative global wind electricity installed capacity (source: GWEC)

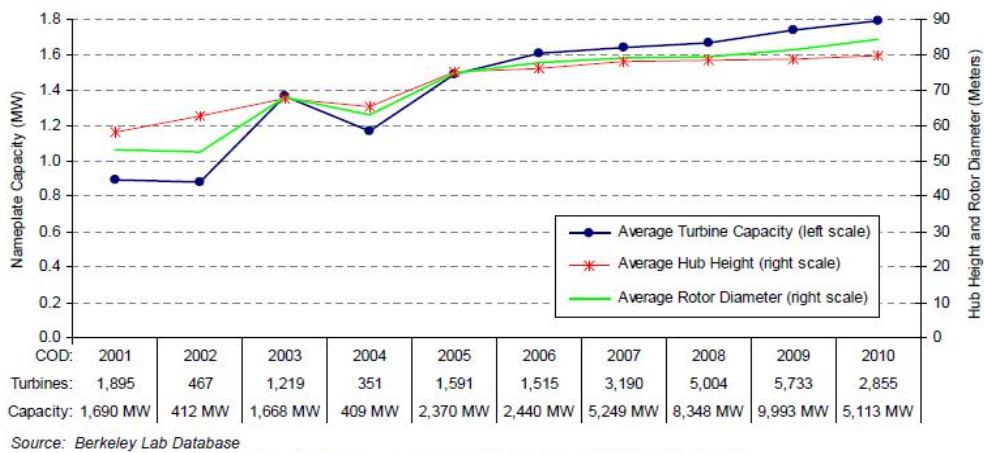
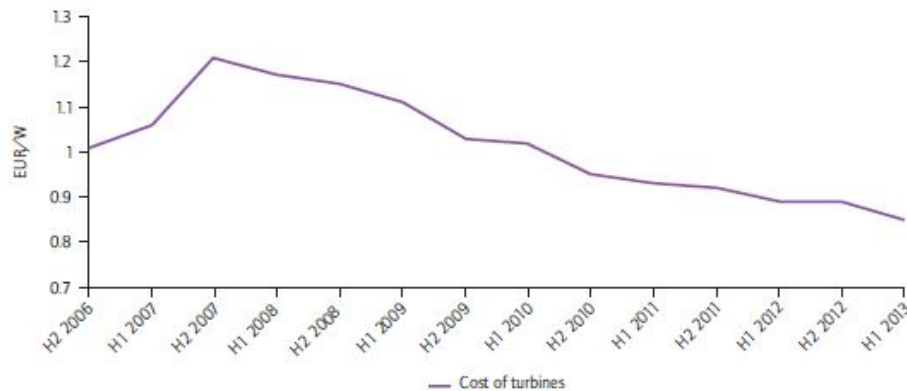
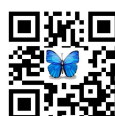


Figure 4: The growth process of the capacity, hub height and the rotor radius



Note: data exclude Asian turbines.
Source: Tabbush, 2013a.

Figure 5: The process of the changes in costs of investment and production of wind turbines installed on land





Sajjad Rahmaani and Mohammad Hassan Fazli

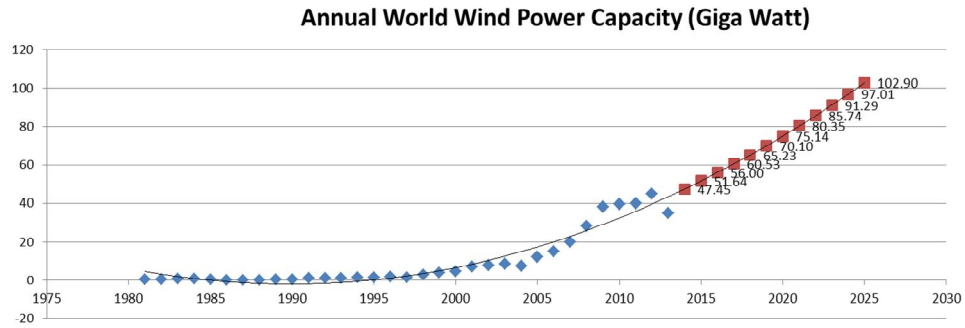


Figure 6: Forecasting the process of the annual global installed capacity of wind electricity

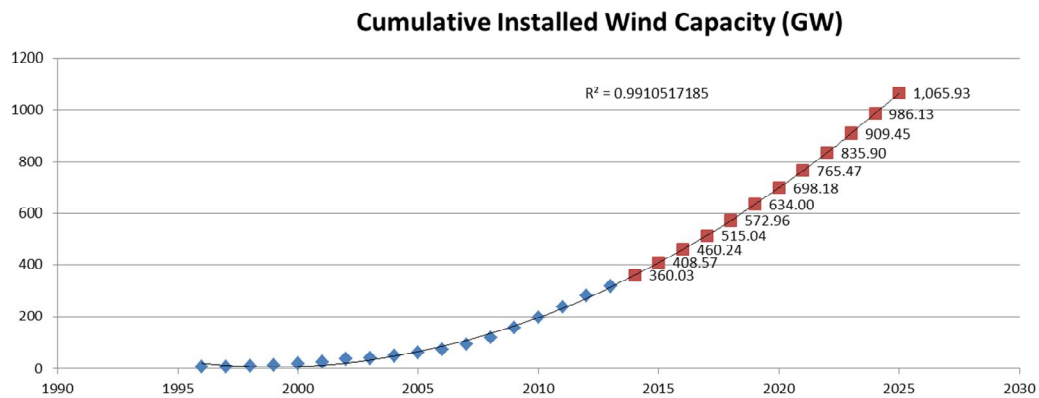


Figure 7: Forecasting the process of the cumulative global installed capacity of wind electricity



Figure 8: Forecasting of the international council of wind energy about the capacity of wind electricity in the following years





Sajjad Rahmaani and Mohammad Hassan Fazli

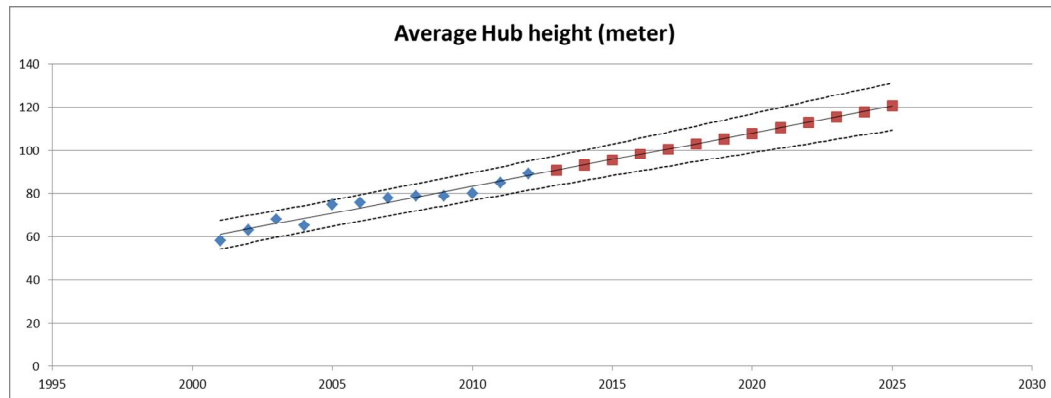


Figure9: Forecasting the process of increase in hub height

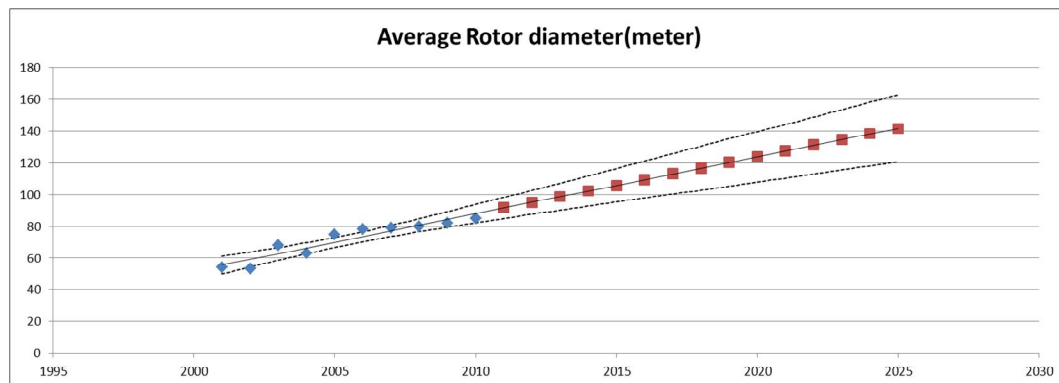


Figure 10: Forecasting the process of increase in rotor radius by the international council of wind energy

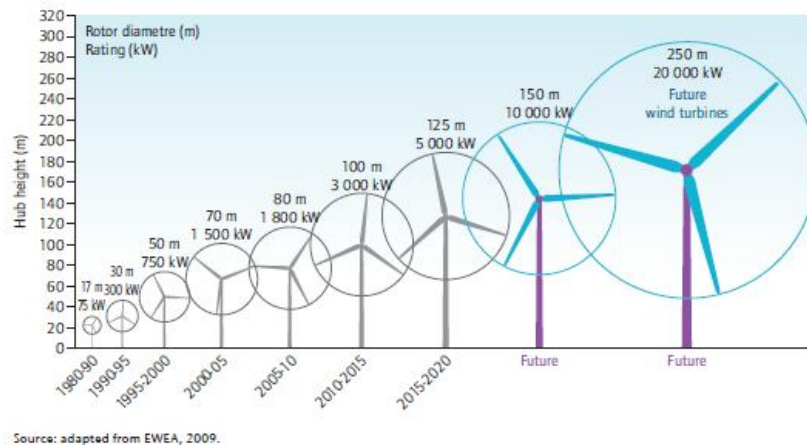
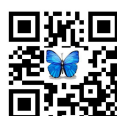


Figure 11: Forecasting the process of increase in hub height and rotor diameter by the international energy agency





Sajjad Rahmaani and Mohammad Hassan Fazli

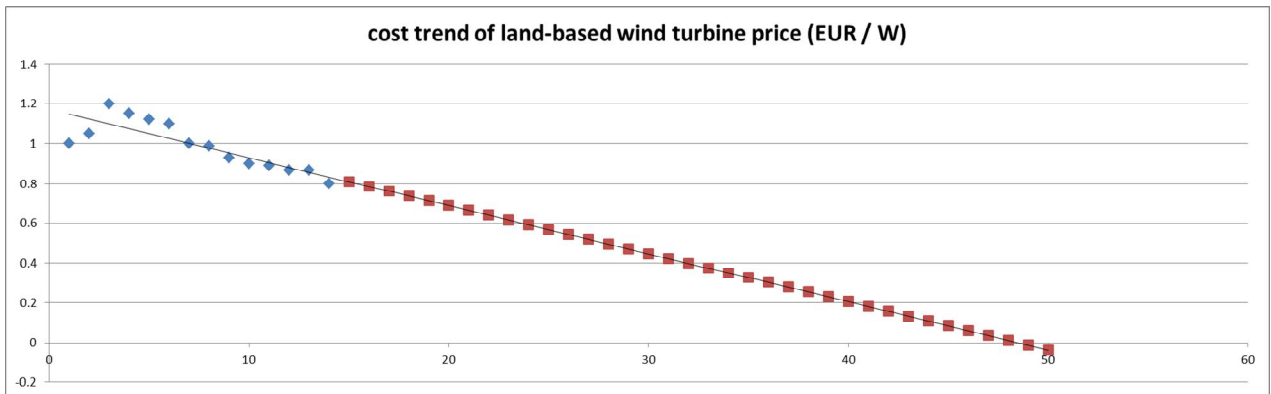
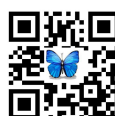


Figure 12: Forecasting the decrease process in the costs in the production of wind turbines

Table1: Statistic of requesting permission to establish private power plants of renewable energies in Iran

Row	Stages of the development of power plants	Pneumatic (MW)	Solar (MW)	Biomass (MW)	Hydropower (MW)	Total (MW)
1	In operation	28.4	...	1.6	...	30
2	Purchase contract of the exchanged electricity	579	...	12	...	591
3	Owning construction agreement	5189	495.1	5	10.087	5699.18
4	Studying feasibility	3626.5	345	9.7	1.4	3982.6
5	Licenses revoked	572.5	...	124.2	29.4	726.1
Total capacity of applications till now		9997.4	840.1	152.5	40.887	11028.8





Crosstalk Analysis and Detection in Dynamic Complex Networks

Hamid Tarakmi¹, Mina Hasheminik^{2,*}, Changiz Eslahchi³

¹Shahid Beheshti University, Tehran, Iran; Email: Hamidtarakmi@yahoo.com

²Institute for Research in Fundamental Sciences (IPM), Tehran, Iran; Email: M.hashemi@ipm.ir

³Institute for Research in Fundamental Sciences (IPM), Tehran, Iran; Email: Ch.eslahchi@ipm.ir.

Received: 18 Jan 2015

Revised: 21 Feb 2015

Accepted: 19 Mar 2015

*Address for correspondence

Mina Hasheminik

Institute for Research in Fundamental Sciences (IPM),

Tehran, Iran.

E-mail: M.hashemi@ipm.ir



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License** (CC BY-NC-ND 3.0) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

In this paper, a method is developed to analyze the structural characteristics of the graphs along with its applications. In order to assess the ratio of the vulnerabilities and analyze the network, we will present a new approach known as Crosstalk in the complex dynamic networks. By using this criterion and presenting the failure rate function, we can calculate the Crosstalk rate of each node in the dynamic graphs by a statistical distribution, even after the input of the new nodes in the network. Following that, the failure rate or the graph vulnerability rate against the crosstalk impact by using a failure threshold will be illustrated, which will finally lead to the discovery of the malicious nodes in the network. Thus, we can provide a framework, in which the network or the dynamic graphs would be synthesized and analyzed, so that the immunization threshold of the networks will significantly increase against the crosstalk impacts.

Key words: Crosstalk, failure rate, failure site and threshold.

INTRODUCTION

Since the complex networks are abundant in nature, their features are important subject to the epidemics and impairments. For example, the social communication networks can help to understand and even help to control the spread of the contagious impairments. The contagious impairment modeling is used to examine the impairment spread mechanisms, prediction, and evaluation approaches to control the any pandemic emergence, which can be used for immunization or isolation. For example, consider a network with $|N|$ nodes. Each node may be impaired and transmit the impairment to any other nodes. If this capability exists in the network, thus the nodes can be





Mina Hasheminik et al.

secured, then the two nodes are shown with an edge in-between. Subsequently, the failure rate is defined, while we obtain the crosstalk in each node and the impairment nodes and the network vulnerability against the malicious nodes are determined.

The failure rate is a measure for evaluating a system or engineering component failure, which is shown by the Greek letter λ , [1]. Moreover, the inclination of two nodes u and v to impact each other is called crosslink between both nodes denoted by w_{uv} [2]. In 2012, Meyers et al. [3] examined the impact of the social networks on the information transmission by the media networks. They purposed to isolate the impacts of the social networks and the external sources, which introduced the external and internal node failure rate. In 2012, Brempotis et al. [2], presented a definition for crosslink by using the graph theory to make some network with certain size and the lowest crosslink level. Kristi et al. [4] have studied the conditions, in which if very high number of nodes are removed from the network (80%), the whole network nodes and the status are compared with the small number of nodes removed from the network. They used the efficiency criteria to evaluate the network response to the external factors. Their study results show that, in such circumstances, many differences exist between Scale-Free Networks and Random Graphs and, in general, the vulnerability assessment in the complex networks against the random failures and the target attacks are allocated in regard of many researchers' suggestions.

In this paper, the attempt is made to obtain the crosstalk rate in the dynamic complex networks by the mentioned concepts and identify the malicious nodes, so that we could sustain the safety and strength of the network. The dynamic feature is counted for the possibility of the new nodes or the removal the previous nodes. This definition of the complex networks is much closer to reality. In the second section in this paper, we describe the proposed concepts and methods and the simulation result is presented on the free scale network in the third section. Finally, we conclude and summarize in the fourth section.

Discovery of malicious nodes and network vulnerability by using failure rate

In the section, the failure rate is introduced to calculate the crosstalk rate of each node by using Weibull distribution and finally the network failure rate is obtained. In addition, the possible changes in the network due to a new node input is examined. The failure rate is a measure to evaluate a system or engineering component failure denoted by the Greek letter λ [1]. We assume that the non-negative random variable X is not negative, as the segment (or system) life cycle is shown with the density function $f_X(t)$ and the cumulative distribution function $F_X(t)$. Then the failure rate function $\lambda_X(t)$ is the component or system non-failure until the time t and the failure period $(t, t+dt)$ is calculated as following:

$$\begin{aligned} \lambda_X(t)dt &= P\{x \in (t + dt) | x > t\} \\ &= \frac{P\{x \in (t + dt) | x > t\}}{P\{x > t\}} \\ &= \frac{P\{x \in (t + dt)\}}{P\{x > t\}} \\ &= \frac{f_X(t)dt}{1 - F_X(t)} \end{aligned}$$

As a result, the failure rate function is defined,

$$\lambda_X(t) = \frac{f_X(t)}{1 - F_X(t)} \tag{2-1}$$





Mina Hasheminik et al.

Burtoni (1964) has introduced some of the Weibull distribution applications. We also consider the time of cross talking created by a node as a random variable x in a similar case in this project. Then its density function is as follows:

$$f_X(\theta) = \begin{cases} 0, & X < 0 \\ \frac{k}{\theta} \left(\frac{x}{\theta}\right)^{k-1} e^{-\left(\frac{x}{\theta}\right)^k}, & X \geq 0 \end{cases} \tag{2-2}$$

In which $k > 0$ is the form parameter and $\theta > 0$ scale parameter.

Its cumulative distribution function is as follows:

$$F_X(\theta) = \begin{cases} 0, & X < 0 \\ 1 - e^{-\left(\frac{x}{\theta}\right)^k}, & X \geq 0 \end{cases} \tag{2-3}$$

So using the density function, we obtained the u node cross talking rate with respect to relations 2-1, 2-2 and 2-3:

$$\lambda_X^u(\theta) = \frac{f_X(\theta)}{1 - F_X(\theta)} = \frac{\frac{k}{\theta} \left(\frac{x}{\theta}\right)^{k-1} e^{-\left(\frac{x}{\theta}\right)^k}}{1 - \left(1 - e^{-\left(\frac{x}{\theta}\right)^k}\right)} = \frac{k}{\theta} \left(\frac{x}{\theta}\right)^{k-1} \tag{2-4}$$

In the cross talking created between node u and other nodes that are not connected to it, We consider the parameter k as node u , Because the Weibull distribution density function for $k > 1$ increases along with the increase of k And it reaches the maximum level then it starts to decline.

We consider the parameter θ as $\frac{d}{d_v}$ that:

$$\frac{d}{d_v} = \frac{\sum_{v \in N_u} d_v}{N} \tag{2-5}$$

N_u is the neighbors of u node within the network and N as vertices of the network.

Also cross talking rate for the entire network is also obtained through total rates of cross talking of all network nodes:

$$\lambda_X^N(\theta) = \sum_{u \in N} \lambda_X^u(\theta) \tag{2-6}$$

It is clear how the connection of a number of new nodes occurs between the nodes in the network, which merely causes many changes in the structure of the network. Thus, the nodes failure rate in the network will change the network. On the failure rate estimation of node u , the connection with the input nodes with the node u have an important role in the failure rate. The number of the nodes connected to the node u are calculated by Poisson distribution. Poisson distribution has abundant applications and it is often alternatively used as the probability model for the probability distribution Y up to the rare events in time, space, volume, line section or even a part of an object. Hence, Poisson distribution could be used as a model for a number of triumphs over a given period or area. Consequently, the probability that Y input nodes through n -nodes are connected to the node u is obtained by Poisson according to the following method.

There are N_u neighboring nodes for the node u in the network (without any new node addition) and $|N|$ is the number of the vertices in the network.





Mina Hasheminik et al.

When \bar{d}_v increases, the density of the crosstalk function will increase. Now, by using equation 2-4, the failure rate of the node u is obtained at the time X, since $K > 1$, the failure rate function value will increase.

In each network, depending on its application, importance, and our sensitivity about the network, the fault threshold is determined for the node (symbol: δ_u) and the network (symbol: Δ_N), and finally the malicious node and the network at risk are different. Therefore, if the node u has $\lambda_X^u(t) > \delta_u$, then the node u is a malicious node and if it occurs in the network N, then the network N would be at risk because:

$$\lambda_X^u(t) > \Delta_N \tag{2-7}$$

The probability of the input node connected to the node u is denoted by P_u and we calculate it in the following:

$$P_u = \frac{d_u}{\sum_{v \in N} d_v} \tag{2-8}$$

Therefore, the average amount of the number of connections in the node u will be calculated as:

$$r_u = n P_u \tag{2-9}$$

Therefore, the density connection probability function of the node Y to the node u would be:

$$g_u(Y, r_u) = \frac{(r_u)^Y e^{-r_u}}{Y!}, Y = 0, 1, 2, \dots \tag{2-10}$$

The threshold limit is supposed as the probability threshold on the connection of a number of nodes connected to a node depending on a specified network and the post threshold area is called the connection area, which is denoted as δ_j and its value is specified between zero and one. Therefore, if $g_u(Y, r_u) > \delta_j$, we assume the nodes connected to the node u.

Failure rate calculation of network nodes and network after new nodes input

For each node u, we obtain the minimum and maximum number of the connections Y-node of input n-node by the density connection probability function of the node Y to the node u more than δ_j and we determine it as Y_{min}^u and Y_{max}^u . Now, the failure rate is the maximum (or minimum) value of each node in equation 2-4. Therefore, for the initial nodes in the network we set the flowing value instead of the parameter k,

$$d_u + Y_{max}^u \text{ or } (d_u + Y_{min}^u) \tag{2-11}$$

And instead of the parameter θ , we consider $\frac{1}{\bar{d}_v}$ in the new network (\hat{N}).

$$\bar{d}_v = \frac{[\sum_{v \in N_u} (v + Y_{min}^u)] + (|N_u| - Y_{min}^u) \frac{\sum_{v \in N_u} (d_v - d)}{|N_u|}}{|N|} \tag{2-12}$$





Mina Hasheminik et al.

In the Equation 2-12, the total vertices degree is calculated, which are not connected to a target vertex, including the total sum of the initial vertices in the network due to the increase of the degree and the multiplication of their numbers is given in the average of the degree. In the Equation Δ, an average amount is added to the degree of each input vertex.

$$\Delta = \frac{\sum_{v \in N'} d_v - \sum_{v \in N} d_v}{|N_n|} \tag{2-13}$$

N' is the new network adding n-node input to N.

N_n is the new network by n-node input into the network N.

The failure rate is calculated for the input nodes with the following placements, instead of the value k,

$$\theta \tag{2-14}$$

instead of the value θ,

$$\theta_v = \frac{[\sum_{v \in N'} (d_v + \Delta)] + (|N| - \Delta) \frac{\sum_{v \in N} d_v - \sum_{v \in N'} d_v}{|N_n|}}{|N|} \tag{2-15}$$

In the Equation 2-15, the total sum of the vertices is calculated which are not connected to any target input vertex, including the total sum of the input network by the count of the increasing degree of each primary network vertex connection and the total degree of the network vertices, which are not connected to the target vertex, as the multiplied number of them is their average degree.

SIMULATION RESULTS

In this section, we afford to simulate and present the simulation results on the target graphs. The evaluated graphs are the artificial free graphs built by Barabási-Albert Algorithm in ORA application. The graph building method relies on the first 50 nodes totally connected, until the total number of the nodes is maximum 100 nodes, as the nodes will be added to the graph one by one. Each new node is connected to the previous nodes (m=2) and/or it is connected according to the below probability, in this equation, k_i is the degree of the node i,

$$P_i = \frac{k_i}{\sum_j k_j} \tag{3-1}$$

Now, we discuss the crosstalk rate function with the variable degree. As it is shown in Fig 3-1, by increasing the degree of a node, its crosstalk rate would increase until it reaches a maximum value and then its value begins to decline. The maximum value depends on the type of the network and the number of the network nodes, which is 9.5×10^8 in this graph that occurs at 68 degrees. Namely, such degree can be called a turning point, since the chart curve alters after this point. The crosstalk rate increase occurs, when the node degree increases and the impairment spread probability increases via this node.

As it can be seen in Figure 3-1, any node degree increase is not good, because by the degree increase, the number of the node relations increases, as a result, there will be a large number of insecure relations to the extent that the number of secure relations would be more than the number of the unsafe nodes. Subsequently, the node degree



**Mina Hasheminik et al.**

increases and the node crosstalk rate reduces, because the node degree increases in this phase and the number of the safe relations would increase as well. According to the results, we can concluded that by the increase of the number of the secure relations in the network, the network crosstalk rate reduces. It is shown in Fig 3-2. When an edge is added to the network, it means that a secure connection is added to the network and the network crosstalk rate reduces, while by the addition of the edge to a node until the node degree reaches a certain amount, it would have a reverse result, which would be equal to 4500 for the number of the edges. By the increase of the degree of the nodes, if the network is disconnected, the network crosstalk rate increases, until the number of nodes increases so much that the network reaches a safe status.

If a new node is added to the network, as a rule of thumb, the network crosstalk rate will change. When a node is added to the network, the number of the insecure relations and the adverse action and reaction probabilities increases, as a result, the network crosstalk rate increases. According to the network crosstalk rate formula, by the increase of theta (in other words, the reduction of the average degree of the non-neighbor nodes for the target node), the whole network crosstalk rate will reduce. It means that by increasing the degree of the nodes that are not connected to the target node, the crosstalk rate of that node increases. Such event is true for all nodes in the network. Thus, the theta value is vice versa to the network crosstalk rate. As it can be seen in Fig 3-3, a series of nodes have rather very different crosstalk rates than the others. These nodes are called black holes. As it can be seen in Fig 3-3, the detection time is very short. In this graph, the number of these black hole nodes is very small, thus this graph is much resistant towards vulnerability.

CONCLUSION

The network provides some relevant infrastructure, in which the performance of the society would have become dependent. In order to build a successful network, various aspects should be considered, such as many important factors, e.g. cost, security, integrity, scalability and fault tolerance. The last factor, particularly in every network, is one of the critical factors. Therefore, the robustness of the network is very important.

In this paper, we have afforded to consider the studied scale-free dynamic networks, which are Barabási-Albert networks. This assumption helps us to examine any crosstalk and its impacts on the network, when the new nodes enter the network and/or the present nodes are removed from the network. We have applied the relationship between failure rate, crosstalk, and fault threshold of the nodes, so the malicious nodes could be discovered and therefore we have examined the network security and resistance.

The most basic important impact of the network edge increase is its impact on the crosstalk rate of the network. When the new nodes are input into the network, the edges will increase. When the number of the edges increases in the network, hence the crosstalk rate increases. It is due to the increase of the edges that the degrees of the nodes increase. Consequently, the crosstalk rate of each node increases, and therefore the crosstalk rate of the entire network increases. This process continues until the network reaches an almost safe status and then the crosstalk rate will begin to reduce, until the graph is fully completed. In this status, the network crosstalk rate becomes zero, because the network is completely secure in this status. The values of the secure status is different in different networks and depends on the type of the network and its criteria. According to the research results, Barabasy-Albert scale-free networks have relatively good resistance against the attacks and the removal of the edges.

REFERENCES

1. S. Ross, "A First Course In Probability", 8th Edition, Pearson, 2009.
2. D. Barmpoutis, R. M. Murray, "Quantification and Minimization of Crosstalk Sensitivity in Networks", Computing Research Repository - CORR , vol. abs/1012.0, 2010.





Mina Hasheminik et al.

3. S. Myers, ch. Zhu, J . Leskovec, "Information Diffusion and External Influence in Networks", In Conference on Knowledge Discovery and Data Mining (KDD), 2009.
4. P. Crucitti, V. Latora, M. Marchiori, and A. Rapisarda, "Efficiency of Scale-Free Networks: Error and Attack Tolerance," Phys. A, Statistical Mechanics and its Applications, vol. 320, pp.622-642, 2008.
5. Asiaee Taheri, "Studying the Effect of Structure on Spreading Process in Complex Networks", MS.c thesis, school of Electrical and Computer Engineering, University of Tehran, 2010.
6. P. Holme, and B. J. Kim, "Attack Vulnerability of Complex Networks," Phys. Rev. E, vol. 65, no. 5, pp. 298-305, 2002.
7. Simonsen, L. Buzna, K. Peters, S. Bornholdt, and D. Helbing, "Dynamic Effects Increasing Network Vulnerability to Cascading Failures," Phys. Rev. Lett, vol. 63, no. 3, pp. 283-420, 2008.
8. P. Crucitti, V. Latora, M. Marchiori, and A. Rapisarda, "Efficiency of Scale-Free Networks: Error and Attack Tolerance," Phys. A, Statistical Mechanics and its Applications, vol. 320, pp.622-642, 2008.
9. D. Centola, "Failure in Complex Social Networks," Journal of Mathematical Sociology, vol. 33, no. 1, pp. 64-68, 2008.
10. J. Kleinberg, "Detecting a Network Failure," Internet Mathematics, vol. 1, no. 1, pp. 37-55, 2004.
11. N. Shrivastava, S. Suri, and C. D. Tpth, "Detecting Cuts in Sensor Networks," ACM Transactions on Sensor Networks, vol. 4, no. 2, pp. 1-25, 2008.
12. P. Barooah, "Distributed Cut Detection in Sensor Networks," Decision and Control, IEEE, pp. 1097-1102, 2008.
13. M. Won, S. M.George, and R. Stoleru, "Towards Robustness and Energy Efficiency of Cut Detection in Wireless Sensor Networks," Ad Hoc Networks, vol. 9, no. 3, pp. 249-264, 2010.
14. L. Chun-Ping, L. Yu-Rong, H. Da-Ren, and Z. Lu-Jin," A Formula of Average Path Length for Un weighted Networks," Communications in Theoretical Physics, vol. 50, no. 4, 1017, 2008.
15. Perisic, and C. T. Bauch, "Social Contact Networks and Disease Eradicability Under Voluntary Vaccination," PLOS Computational Biology, vol. 5, no. 2, e. 1000280, 2009.
16. J. Kleinberg, "Detecting a Network Failure," Internet Mathematics, vol. 1, no. 1, pp. 37-55, 2004.
17. L. Chun-Ping, L. Yu-Rong, H. Da-Ren, and Z. Lu-Jin," A Formula of Average Path Length for Un weighted Networks," Communications in Theoretical Physics, vol. 50, no. 4, 1017, 2008.

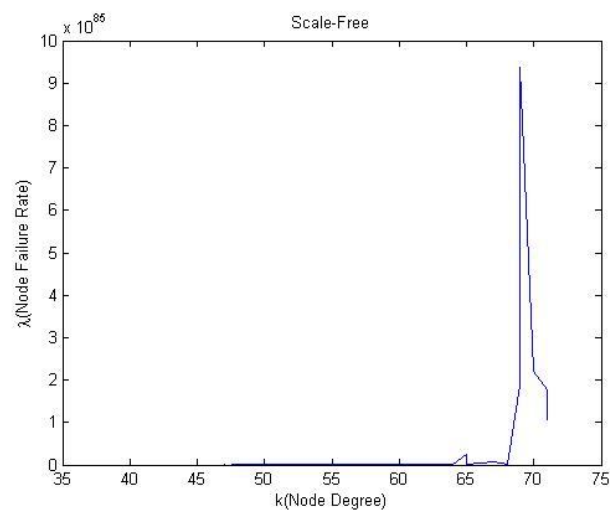


Figure 3-1: Node degree impact on the crosstalk rate in Barabási-Albert Graph





Mina Hasheminik et al.

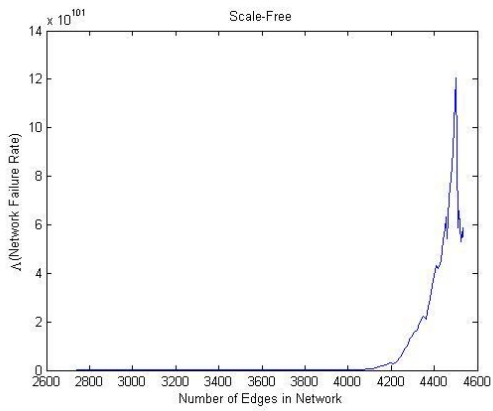


Figure 3-2: Impact rate by number of network graphs on crosstalk rate in Barabási-Albert Graph

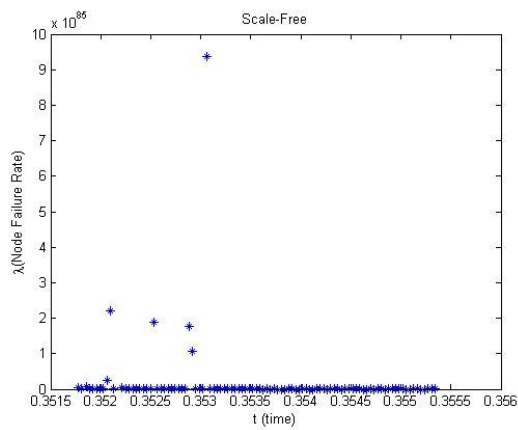


Figure 3-3: Detection of black holes in Barabási-Albert network





Food Nutritional Survey of Working Women: A Case Study

Krutika C. Gangde*

*Ex M.Sc student (Home Science-Food Science & Nutrition), Smt. RDG College for Women, Akola (MS)

Received: 10 Jan 2015

Revised: 11 Feb 2015

Accepted: 25 Mar 2015

*Address for correspondence

Krutika C. Gangde

Ex M.Sc student (Home Science-Food Science & Nutrition),
Smt. RDG College for Women,
Akola (MS).



This is an Open Access Journal / article distributed under the terms of the **Creative Commons Attribution License (CC BY-NC-ND 3.0)** which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. All rights reserved.

ABSTRACT

The working women face the problems centered on their children, household duties and the office work. Family status of the respondents showed that most of the families are the nuclear families. Study reflected that working women has supported to the family income and have resulted in good lifestyle. In relation to the nutritional aspect working women possess medium knowledge but nutritional practices found are high. The intake of calories, carbohydrates and fats were found excess. The essential proteins, calcium and vitamins were found deficit in regular diet of working women.

INTRODUCTION

Women are the integral part in any development. Their contribution as wives, mothes, income earner's home managers and community members often go unrecognized and undervalued. Over work and the stress during work not only affect health of women but also families. Women employment supplement to the household income and paves for better purchasing power. Time management is the biggest problem. She has no time left for rest or hobbies.

The health problems like headache, backache, hypertension and various other ailments are among working women. Employment for women has become a need in 21st century. Although the working and employment are accepted by the family members in urban area, however, they are not ready to accept the changing pattern of life. Women are participating in many skilled jobs, the advance science and technology areas are improving the quality of life.

The women don't want to leave the job as it is not only their economic need but also psychological need leading to personality development. Because of this she faces physical as well as mental stress. The working women who is not able to balance her office and home stress, brings personal stress to office and work stress of office to the home, becomes irritated and angry in nature.



**Krutika C. Gangde**

The status of women is affected by the health level and the nutritional status. Women working outside the home for long duration have less leisure time because of work pressure, and hence they cannot take proper care of their health. Measures aimed at improving eating habits inculcation of desirable nutritional practices, scientific utilization of available food material and the effective popularization of improved cooking practices have to be implemented as food is the basic requirement for survival. Present study is an attempt to know the nutritional profile and body requirement of women working in sedentary jobs. The findings will help in suggesting way and means for introducing changes and modifications in the nutritional profile of working women.

METHODOLOGY**Selection of the sample**

A sample of 120 women working in sedentary jobs in the age group of 25 to 50 years was selected for the study.

The major occupational categories considered were

Educational institutes

Women working in the different offices viz. Government and non-government offices.

Women working in different banks.

The women working from each category were selected for the present study to formulate a sample 120 working women.

Tools and Technique used for Data collection

For achieving the object of the study appropriate data collecting techniques were devised and used for data collection. The observations and interview were the techniques employed for collection of data. For this purpose intentional and observation schedules were developed for collection of data. The data of personal characteristics, nutritional status, awareness of the nutrition and the health index has been collected in the present investigation.

RESULTS AND DISCUSSIONS

In the present study the health and nutritional profile of sedentary working women were studied out to see the nutritional profile of working women. For this study survey method was used. Data were collected with the help of interview and observation schedule. The information about sedentary working women and their family, meal patterns, knowledge and use of nutritional practices, dietary intake, anthropometric measurements, clinical assessments health and social problems of sedentary working women were collected.

Personal characteristics:

Age: The distribution according to age indicated that about half of the selected working women (48.33%) were of 31 to 40 years age. As much as 24.16 % were in the age group of above 41 to 50 years. Working women between 31 to 40 years of age group dominated the age wise distribution.

Education: Selected sedentary working women were classified according to their educational level. It is revealed that women having low educational level were meagre in service, out of total selected working women having educational qualification up to under graduate and diploma were 12.57 % while 87.53% working women engaged as teachers, lectures, clerks in banks were having qualification of graduate and above. The results thus indicate that working class of women was dominated by qualified and highly qualified women.





Krutika C. Gangde

Food habits and diet pattern

Type of food (food habit): Food habit is mostly dominated by religion and the surroundings. Selected women were classified according to their food habits. It was noted that 88.67% had their liking towards vegetarian food 18.33% prefer occasionally non-veg food and hence their liking was of mixed type. None of the respondents prefer only non-veg food.

Diet pattern: In this view, selected sedentary working women were asked about dietary pattern and classified on the basis as per pattern observed. The finding shows that dietary pattern was dominated by lunch and dinner, as 40.83% women were following the lunch and dinner pattern. As much as 27.50% women had their dietary pattern as breakfast, lunch and dinner. Nearly one-fourth (24.17%) were following the diet pattern of breakfast, lunch, snacks and dinner. Only 7.5% had three time diet as lunch, snacks and dinner.

Working women were generally following the lunch, snacks and dinner pattern and only 24.17% working women were following the recommended dietary pattern i.e., Breakfast, lunch, snacks and dinner which is a matter of concern.

Nutrition knowledge

The information about the knowledge and nutrition practices show that, majority of the women (49.17%) had medium knowledge. It was followed by 18.33% women with high knowledge. Remaining medium 49.16% and low 32.50 % were poorly equipped with knowledge about nutritional practices and were observed in low category of knowledge. The hypothesis that the nutritional knowledge of working women is adequate therefore does not hold good.

Nutritional practices

The information about nutritional practices indicates that majority of working women (54.17%) used to follow recommended nutritional practices to higher extent. Nearly 30 % were in medium category remaining 16.16% had low adoption nutritional practices. The above findings therefore lead to the acceptance of hypothesis formed earlier that there is adequate use of nutritional practices in working women.

Nutrition intake

It is found that the daily consumption of calorie by majority of working women (57.50%) was more than normal. As much as 25.83% had normal intake and 16.67% had below normal intake than recommended dietary allowance (Table 1). The hypothesis that the nutritional intake of working women is adequate is hence accepted. The below normal intake was noted in 16.66% the 40% had their carbohydrates intake as normal and above normal consumption was noted in 41.66% respondents. The below normal intake was noted as 47.5%. As much as 41.67% had their protein intake as normal. Above normal intake was observed in 10.83% working women. The above normal intake of fats was observed in case 58.33% working women. Nearly about one fifth each had normal and below normal intake of fats than recommended dietary allowances (Table 1). The calcium intake shows that majority of the working women (61.67%) had below normal calcium intake. As much as 25.83% had normal intake of calcium. Only 12.50% had above normal calcium intake. Deficiency of calcium causes weakness of the bones. So awareness is essential for the normal intake of calcium in working women.



**Krutika C. Gangde****Anthropometric Measurement**

The pattern of growth and the physical status of the body though genetically determined yet is profoundly influenced by diet and nutrition. The anthropometric measurements with regard to height, weight and body mass index of the working women were taken. The majority of the respondents (75.83%) belong to about 166 to 175 cm height category. Only 7.5% are between 156 cm to 165 cm and remaining 16.66% were below 155 cm in height. It is seen that 35.83% working women were up to 35 kg of body weight and 11.66% are above 70 kg. Remaining 52.50% were in between 36 to 70 kg in body weight group. On the basis of height and weight the BMI was worked out and seen that 16.67% working women had BMI up to 19. In one third (19.01 to 24) categories there were 50.00% and in remaining BMI category that is above 33.33% working women were observed.

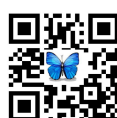
Health problems

It is observed that about one fourth (25.83%) working women were suffering from hypertension. As much as 20.83% reported that they feel exhausted. A small percentage of working women had the problem of diabetes, low B.P. Anaemia, back pain and overweight.

Physical, mental and social problems: It is observed that a small percentage of working women expressed the problem of loss of interest (2.50%), mental tension (3.33%). Quarrel with husband (8.33%) loss of sleep (4.16%) cannot take care of children (2.5%) harassment from family members in (10.83%), problem of sharing household work (13.33%), and lack of cooperation from co-workers (9.16%). About one fourth women expressed that they had the problem of harassment at work place (25.83%). Another 20% total expressed that they felt depressed. Similar results are also reported by (1).

CONCLUSION

The working women in general were 31 to 40 years age, having more than graduate degree, belonged to small nuclear families with no child of up to 15 year. They possess medium knowledge but their nutritional practices use was high and had a remarkable inclination towards the nutritional practices. The intake of calories, carbohydrates and fats was in excess but that of proteins, calcium and vitamins was deficient. Most of the women were normal in height weight and BMI. Clinically they were normal. The majority problems they were facing were harassment and depression. The characteristic of the working women, namely, age, education and attitude towards nutritional practices were found to be significantly associated and determining the nutritional intake of the working women. Working women selected in majority (48.33%) belonged to age 25-50 years. About 31 to 40 years age group working women were having their qualification graduate and above. The majority of working women belonged to nuclear families. The working women families in majority consist of up to 4 members (64.17%) with no child below the age of 15 years (66.67%). In great majority of families of working women the husband (70.87%) occupies the position of family head. In case of 50.83% working women the family income was up to Rs 25000/- per month. Selected group of respondents were vegetarian dominated (81.67%). As much as 40.83% working women preferred dietary pattern of lunch + dinner and 27.5% working women preferred dietary pattern of breakfast + lunch + dinner. There is high adoption of nutritional practices (54.17%) by working women. The attitude of working women towards nutritional practices was found to be adoptable. The total calories, carbohydrates, and fats intake were noted to be more than RDA but the intake of proteins, calcium and vitamins were less than RDA in maximum percentage of working women. The working women in majority belonged to body height group of 166 to 175 cm (75.83%), weight category of 36 to 70 kg (52.50%) and BMI of 19.01 to 24.00 (50%). The higher percentage of working women had normal eyes (80.00%), normal vision (74.17%), black hair (83.33%), pale nails (54.17%), tight skin (51.67%), normal teeth (70.84%), fresh physical appearance and normal appetite. The higher percentage of working women expressed that they had the health problem of hypertension (25.84%). The working women were found to come across with the problem of





Krutika C. Gangde

depression (4.00% of women) and harassment at work place (25.83% of women). The education and attitude towards nutrition of working women were found to be significantly associated with the nutritional intake of working women. Diet plan for better nutritional security for working women is suggested in Table 2.

REFERENCES

H. Jain and N. Singh. (2003) : A study on the nutritional status of women in the age group of 25-30yrs. Working in sedentary job in Jaipur City. The Indian Journal of Nutrition and Dietetics, Vol. 40, No.(3): 92-98.

Table – 1: Recommended Dietary Allowance (RDA) for 25 to 50 years Sedentary working women

Sr. No.	Nutrients	quantity
1	Energy	2225 Kcal
2	Protein	50 gm/ day
3	Fat	20 gm/ day
4	Carbohydrates	460 gm/ day
5	Calcium	400 gm/ day
6	Iron	30 gm/ day
7	Vitamin A (Beta – carotene)	2400 ug/day
8	Vitamin C (Ascorbic Acid)	40 mg/day

Source : A Report of Expert Group of the Indian Council of Medical Research, 2000. Nutrient Requirement and Recommended Dietary Allowances for Indians.

Table – 2: Diet plan for sedentary working women menu plan

Sr. No.	Time	Menu Planning	Servings
1	Morning	Tea	1 Cup
2	Breakfast	Bread	3 Slices with ½ tsp butter
		Banana	1
3	Lunch	Chapati	3 servings
		Rice	1 cup
		Dal	1 cup
		Curd	½ cup
		Seasonal /Vegetable	1 cup
		Salad	1 serving
4	Snacks	Tea	1 cup
		Biscuit	2
5	Dinner	Chapati	2
		Rice	½ cup
		Mung dal	1 cup
		Curd	½ cup
		Salad	1 serving
6	Bed Time	Milk	1 Cup

