

**Provide a Framework for Identifying and Prioritize  
the Factors Affecting the Human Resources  
Effectiveness with ANP Approach**

**Parisa Aghababaie-Poor**

Department of Industrial Management, Karaj Branch,  
Islamic Azad University, Karaj, Iran

**Mehrdad Hoseini-Shakib**

Department of Industrial Management, Karaj Branch,  
Islamic Azad University, Karaj, Iran  
(Corresponding Author)

**Abbas Khamseh**

Department of Industrial Management, Karaj Branch,  
Islamic Azad University, Karaj, Iran

**Abstract.** This study aims to identify and prioritize the factors affect the effectiveness of human resources at Islamic Azad University of Karaj. The research is descriptive-survey method because researchers use a questionnaire, content validity and the experts' point of views are used to assess the validity of questionnaire and Cronbach's alpha was used to assess the reliability. To measure the content validity, the questionnaire consists of 11 items was distributed among 20 experts. After confirming the validity, for the approval of the conceptual model, the questionnaire of structure model is used that this questionnaire was distributed among 40 experts in Islamic Azad University of Karaj. Then, ANP questionnaire was distributed among the 24 experts to prioritize factors and variables affect the effectiveness of

human resources. According to the results of economic factor as the most important factor affects the effectiveness of human resources in Islamic Azad University of Karaj, and organizational, personal, environmental and management factors are ranked second to fifth.

**Keywords:** Productivity, Efficiency, Effectiveness, Effectiveness of Human Resources.

## 1. Introduction and Literature Review

Traditionally people to cope with life cycle events, have attempted to establish and develop organizations through which they can achieve their goals and needs. Despite enormous recent progress in various areas, people still form the mainstay of the organization. So that the success of the organization in order to achieve their goals depends on how their attitude toward man and how to deploy this force (Hashemi et al., 2011). Staffs often are the most important assets in an organization that help the growth and success of the organization. Knowledge capital should be maintained with rapid change and continuous for organizations to meet the needs of shareholders (Muslim Amin et al, 2012). Today, productivity and human resources elements are one of the main topics that will guarantee the sustainability of organizations (Attafar et al., 2013). The world has changed and changing industrial economy to a service economy and the rapid development of the organization, role service organizations in the development of societies has increased. (Smith, 2001) Measuring productivity improves performance of government agencies and improve the rating (Stein, 1992). The ILO definition of efficiency offered: Efficiency is the ratio of profit to be one of the factors of production (land, capital, labor and management). The concept of efficiency in mass production has deep roots and this is perhaps the reason for the neglect of extending the subject of efficiency in the management of services (Attafar et al., 2013). Joseph Petit efficiency and the ability to acquire the product output data knows more than the minimum. Martin Manzer (1990) defined efficiency as the ability to do things and achieve the optimal results. Efficiency means achieving organizational goals with minimum cost .It was the organization's efficiency by comparing the efficiency of

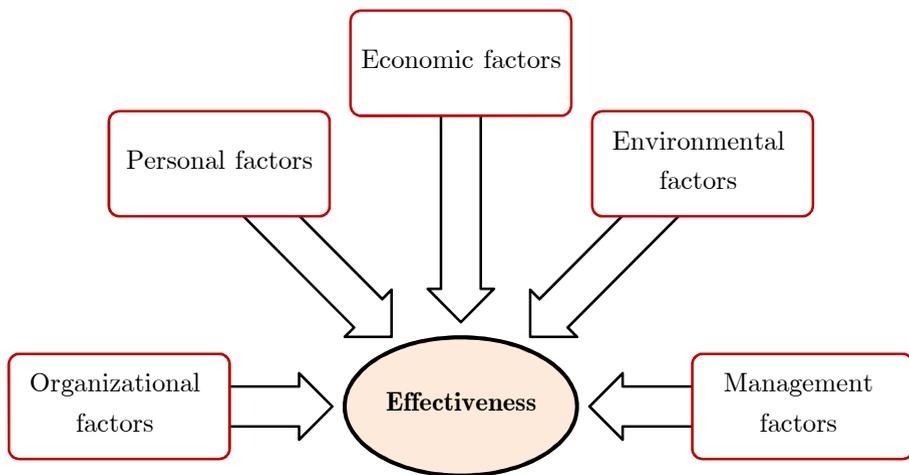
operations and resources spent examined. The efficiency of resource use is proportional to the ratio of operational efficiency (Garavan et al., 1999). The effectiveness of various definitions provided. In Toter's point of view, effectiveness is a continuous process of turning the program and includes all activities that are carried out in order to achieve pre-determined objectives. In order to determine how well they are doing and have been desirable (Hoseiniyan and et al., 2010).

From the perspective of behavioral science, effectiveness, job behavior, and job performance are closely related concepts. Effective means of achieving the goals defined limits. And to the effectiveness of human resources means the human resources to achieve career goals. How the job is a job behavior. How much a person tries to be using your work tasks, knowledge, skills and attitudes necessary to do his job behavior reflect. Job performance is the result of practical work with pre-determined goals to be achieved. Thus, we can conclude that job behavior, determines the level of job performance and job performance indicates the degree of success in achieving his career goals or effectiveness. (Labaf et al, 2000). About the relationship between cognitive abilities and job experience and job performance, Coles and colleagues in a study in 2008 concluded that both variables of cognitive abilities and experiences significant relationship with job performance and thus the effectiveness of their employees. Thomas Vernadin Aglter in 2009 analyzed the leadership style and effectiveness in a comprehensive, research-based that has been done in recent years. They concluded that based research emphasize the role of managers in the efficiency and effectiveness of staff. He also said that the indisputable artistic investigations Mintzberg a leadership model presented and suggests that the leadership style of environment variables affect the efficiency of employees. Vahabi Kashi and colleagues in 2010 have don a research control behavioral effects research conducted on the effectiveness of the sales department staff. The results of this research, behavioral control and behavioral performance, the results and effectiveness of the sales department staff have a positive impact. In addition, behavioral performance and thus also has a positive impact on the effectiveness of the sales department staff. A research has been done about the effective factors of productivity in Saman Bank. The results

confirmed that the basic needs of employees, employee participation in decision-making and participatory management style boosts employee productivity in the workplace is the director (Taleghani et al., 2011).

**Table 1.** Comparison of researches

Comparison of Researches			
Research Methodology	Centralization	Topics	Author and Year
Descriptive survey	Job Performance	Relationship job skills and job experience with job performance	Coles and et al. 2008
Descriptive survey	Effectiveness	Leadership style and effectiveness	Thomas Vernadin and Aglter 2009
Descriptive survey	Controlling staff	The impact of behavioral control on the effectiveness of the sales department staff	Vahabi Kashi and et al. 2010
Descriptive survey	Efficiency	Factors that increase productivity	Taleghani and et al., 2011



**Figure 1.** Conceptual model

## 2. Hypotheses

- There is a significant relationship between economic factors and the effectiveness of human resources.
- There is a significant relationship between individual factors and the effectiveness of human resources.
- There is a significant relationship between environmental factors and the effectiveness of human resources.
- There is a significant relationship between organizational factors and human resources effectiveness.
- There is a significant relationship between management and the effectiveness of human resources.

## 3. Methodology

The study is applicable in terms of objective, it is a case study in terms of implementation, it is descriptive research for data collection, and it the survey study. The study population included all experts of Islamic Azad University in Karaj in the field of human resources. The sample in this study is available on the number of experts that their characteristics are: Minimum 5 years' experience in human resources management or teaching in the field of human resources. The researcher has used the closed questionnaire to collect data. Because the researcher used questionnaires to assess the validity of construction, the content validity and the experts' viewpoints have been used to measure the validity of questionnaire. In this method, both the CVR and CVI used. A questionnaire with 11 items distributed among 25 experts of Islamic Azad University of Karaj that 20 of them were returned. CVI and CVR values were calculated according to equation 1 and 2.

$$\text{Equation 1: } CVR = \frac{n_e - \frac{n}{2}}{\frac{n}{2}}$$

$$\text{Equation 2: } CVI = \frac{\sum_n^1 CVR}{\text{Retained Numbers}}$$

The CV for 20 people should be at least equal to 0.42 and the CVI must be at least equal to 0.5, according to the calculations for all the questions CVR value of 0.5 is more than 0.42 and the CVI Cronbach's alpha coefficient was used to measure reliability.

If alpha is greater than 0.7, there liability test is acceptable. The researchers confirmed the conceptual model of factor analysis is used. A questionnaire with 11 items was developed. Confirmatory factor analysis based on a sample size determined not operating variables. If used structural equation modeling about 20 samples for each factor (latent variable) is required .Based on a conceptual model as the only variable effectiveness is hidden. The sample size for respondents to the questionnaire will be 20 people. In this study, the authors of the questionnaire among 40 experts available who described their features distributed Cronbach's alpha of the questionnaire is equal to 0. 847, because the amount is more than 0.7, so the reliability is confirmed.

#### 4. Findings

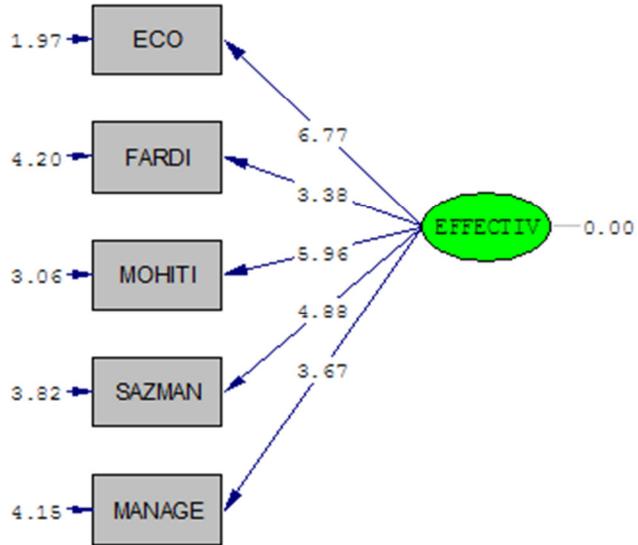
The first hypothesis is necessary to assess the validity of using the chi square test to determine the significant level of economic factor on effectiveness of human resources.

**Table 2.** Amount main factor loadings

T-Value	Load factor	Title	
6.77	0.86	Economic Factors	Factors influencing effectiveness
4.88	0.64	Organizational factor	
3.38	0.39	Individual factors	
5.96	0.67	Environmental factors	
3.67	0.36	Management factors	

According to Table 2 and Figure 2; the significant level of economic factor equals 6.77. Since the minimum acceptance level for this test is more than 1.96 and less than -1.96, and 6.77 is more than the acceptance level. The significant level of individual factor is 3.38. Since the minimum acceptance level for this test is more than 1.96 and less than -1.96 and 3.38 is more than the acceptance level. A significant level of

environmental factor is 5.96. Since the minimum acceptance level for this test is more than 1.96 and less than -1.96 and 5.96 is more than the acceptance level.



Chi-Square=6.13, df=5, P-value=0.29413, RMSEA=0.076

**Figure 2.** Correlation values of effectiveness

The significant level of organizational factor equals 4.88. Since the minimum acceptance level for this test is more than 1.96 and less than -1.96 and 4.88 is more than the acceptance level. The significant level of management factor equals 3.67. Since the minimum acceptance level for this test is more than 1.96 and less than -1.96 and 3.67 is more than the acceptance level. The correlation was significant and observations based on the T-Value are acceptable and relations are confirmed. The t statistic shows the significant of correlations at the error level of 5%. If any of the values of t is greater than 1.96, a significant correlation was observed. As shown in, t values, and significance of each of the variables affecting the effectiveness are shown in table (5).

**Table 3.** correlation with efficacy values

Squared Multiple Correlations for X – Variables					
Experience	Training	Safety	Control	Convenience	leadership
0.25	0.11	0.46	0.24	0.69	0.43
Technology	Structure	Partnership	Payment	Education	
0.48	0.48	0.19	0.65	0.31	

Because all t values for the variables affecting the effectiveness of human resources are higher than 1.96, all variables are significant and effective that the correlation is shown in the table 4

**Table 4.** T-value and significance level

value and significance level-t											
Variable name	Experience	Training	safety	Control	Recreational facilities	Method of leadership	Organizational Structure	Employee participation	Payment System	Studies Level	Technology
T	5.32	3.3	7.72	5.16	10.38	7.46	7.94	4.52	9.9	5.9	6.85
Significance level	0.02318										

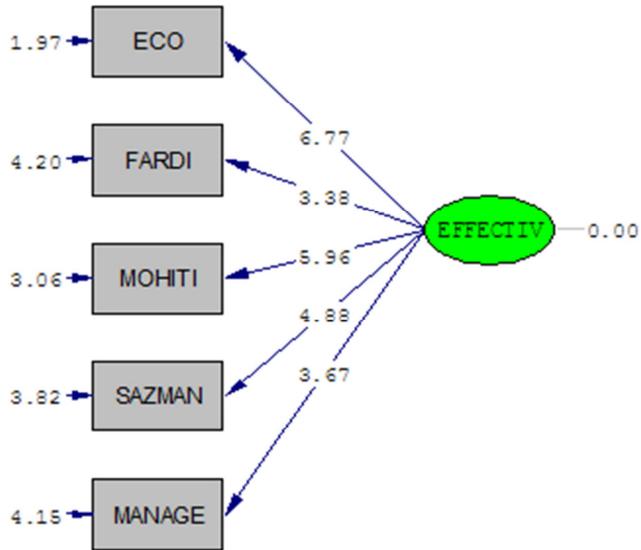
Karl Pearson in 1900 to assess the similarity between the experimental curves and theoretical curves presented the chi square test. This test shows how the model developed by the researchers based on actual observed data. One of the most popular fitness tests is chi-square test. Goodness of Fit in simple term means the extent to which models or how good is designed. For the fitness measure multiple parameters of statistical models proposed by researchers that in the confirmatory factor analysis, five key indicators are: RMR, GFI, AGFI, NFI, NNFI, and CFI. The Fitness Index and acceptance level of these indicators is shown in Table 5. It means that if the value is more than the acceptance level, it would lead to the proposed model.

The indicators of fitness for the output software are as Table 5

**Table 5.** Grace Indicator Table (Results)

X <sup>2</sup> /df	RFI	AGFI	GFI	CFI	NNFI	NFI	RMSEA
1.49	0.90	0.85	0.91	0.97	0.96	0.93	0.068
1-5	> 0.9	> 0.9	> 0.9	≥ 0.9	> 0.9	> 0.9	0.05 <

To verify the model, it is necessary to identify and verify the variables affecting each of these factors, should be confirmed by correlation factors influencing effectiveness. Thus, the verification model is shown in Figure 2.



Chi-Square=6.13, df=5, P-value=0.29413, RMSEA=0.076

**Figure 3.** The final confirmatory model

prioritize the factors and effective variables on the effectiveness, the researcher has used network analysis process techniques. A questionnaire with 127 items was developed and distributed among 24 experts. The Cronbach's alpha is equal to 0.971, since this amount is more than 0.7, so the reliability is confirmed. The results of the model outputs are based on the weights of each of the factors and variables to prioritize factors and variables used and the results will be prioritized as follows: Economic factor is in the first place. The second is related to

organizational factors. Then the individual is known as the third factor .And environmental factors and management agent are in fourth and fifth respectively. In the ranking of variables, the first ranking relates to facilities and the payment system.

## 5. Conclusion

Table 6 in Ranking of Factors Influencing Effectiveness, the first priority relates to economic factors and the last priority relates to the management factor. Therefore, the economic factor affecting the effectiveness of human resources in Islamic Azad University of Karaj is the most important factor. As a result, management should pay more attention to this factor and provide areas for improving factor, but management factor has minimal impact on the effectiveness of staff and do not need much capital to be considered for it.

## 6. Suggestions for Future Research

- Researchers can use this model for the relation of the factors affecting the effectiveness of the multiple regression analysis, correlation or not.
- developing a system dynamics model based on the effectiveness of the organization.
- Indigenous model effectiveness in order to achieve efficiency model developed indigenous organizations.
- The research in order to extract the indigenous models of the effectiveness of Azad University of Iran should be developed.

## References

- [1] Hosseinian, Shahamat, Majidi, Abdullah, Yaqoubi, Adel (2011), "The effect of finding human resources in the police organization(the views of experts in the selection and recruitment of human resources and Deputy Chiefs of Police)", *Journal of Development*, Vol. VI, No. 19
- [2] Labaf, Hassan, Shamsyry, blazing (1379), "the factors affecting the effectiveness of human resources", *science and research*, No.4, page69-82

- [3] Hashemi, Seyyed Hamed, Azad Amin pour, Saeideh, (2011), "The challenges facing the development of human resources and ways to fix it", work and society, No.136
- [4] Amin, Muslim, Wan Ismail, Wan Khairuzzaman, Siti Zaleha, Abdul Rashid, Andrew Selmani, Richard Daverson (2014), "The impact of human resource management practices on performance (Evidence from a public university)", The TQM Journal, Vol 26, pp 125-142
- [5] Atafar, Ali, Vazifeh Damirchi, Quder, Zaman zadeh Darban, Mosa, (2013), "Factor Analyziz of human resources productivity in Moghan sargo industry company", Journal of Ijesm, , Volume 2, Issue 1, p 2
- [6] Epstein, P. D. (1992) "Measuring The Performance of P.S "Public Productivity Handbook", edited by: Holzer, united states.
- [7] Garavan, T.N, Heraty, N, Barnicle, B, (1999), "Human resource development literature: current issues", Priorities and dilemmas, Journal of Industrial training, pp: 11-23
- [8] Lawshe CH (1975), "A quantitative approach to content validity. Personnel Psychology, 28, 563-575.
- [9] Smith, JR. QW (2001), "A Benchmark Approach Public Service", Patimes, Vol 24, Issue 5, P8.

