

MEASURING THE RELATIONSHIP BETWEEN SATISFACTION WITH IN-SERVICE ELECTRONIC TRAINING COURSES AND EMPLOYEE'S PRODUCTIVITY FROM THE VIEW POINT OF EMPLOYEES: A CASE STUDY IN BIRJAND UNIVERSITY OF MEDICAL SCIENCES

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Abstract

Introduction: Today's, the E-learning has become more popular in recent years to solve the problems of traditional training. The in-service training can be effective for employees of any organization to obtain experience, improve the performance, and increase their ability level. This paper aims to investigate the satisfaction of employees of Birjand University of Medical Sciences with E-learning courses and its role to improve their performances.

Methods: In this cross-sectional study, 318 employees of Birjand University of Medical Sciences were randomly chosen in 2017. To accomplish the aforementioned aim, the Hersey and Blanchard and Goldsmith questionnaire as well as the Harrisson questionnaire of employee satisfaction are utilized to collect the required data. Then, data are analyzed using SPSS V.22 statistical software, the descriptive statistics (mean and standard deviation), and inferential statistics (Spearman, Kruskal-Wallis, and Mann-Whitney).

Results: The mean age and work experience of the participants are 34.69 ± 7.89 and 10.04 ± 7.97 years, respectively. The mean scores of satisfaction and productivity are 66.89 ± 12.68 and 53.91 ± 12.16 , respectively. Moreover, a positive and significant correlation is observed between satisfaction and productivity ($p < 0.05$). Furthermore, the mean score of satisfaction decreased significantly by increasing education ($p = 0.04$). However, there is no significant relationship between satisfaction with gender, occupation, and type of employment.

Conclusion: According to the obtained results, those employees who are more satisfied with E-learning courses had higher productivity. Thus, it is critical to pay attention to the quality of the trainings for similar issues more and more in the specialized areas of the employees.

INTRODUCTION

One of the well known as the most important area of organizational management is human resource so that it would lead to either failure or success of an organization [1]. As an efficient manpower is the most valuable resource of any organization, most of the investments are emphasized on manpower. In this matter, training is the most important tool used for this purpose [2]. In this regard, it can be said that manpower training is a kind of investment whose return plays a critical role in the flourishing and optimal development of the organization as well as in promoting the general culture of the society [3]. Here, the employee training can be effective to achieve experience as well as to enhance the performance [4], and to increase productivity and the level of ability of individuals [5]. Moreover, it can also ensure the perfection and survival of the organization by taking strategic development [4].

It is worthwhile to mention that the ultimate objective of employee training is to improve their efficiency and effectiveness. As such, investigating and being aware of the results and efficiency of training, are considered as the requirement of the training process, based on which the training cycle is completed as well [6]. In this way, William James of Harvard University, found that employees in organizations utilized about 20 to 30 percent of their potential. His research indicated that if employees were trained and properly motivated, they could show 80 to 90% of their abilities and capabilities [7]. Along with hiring employees in organizations, characteristics, working conditions, and their issues and problems, it creates the need that they receive the appropriate training in accordance with their assigned tasks [8]. In other words, the rapid growth of science, the constant emergence of new technologies, rapid change in the needs and customers' requirements in organizations, increasing competition, and finally the need to improve both quality and productivity for the survival of the organization, would lead to the need for in-service training [9].

Job Rotation is one of the advantages of in-service training, which has an important impact to improve the knowledge and skills of employees. It will cause the following changes: changes in the spirit of cooperation and interaction between employees; Strengthening or generating desirable behaviors in employees; Training the force to get new jobs and positions; Increasing skills in new methods [7, 10]. It should be noted that focusing on the methods of providing these trainings is doubly necessary because the employees of different organizations are in different occupational, social, and

economic conditions. Naturally, it is substantial that not only educational topics and titles be chosen based on the correct educational needs assessments, but also the methods of providing training should be designed in such a way that they have the best learning and efficiency while the least negative impact on their professional performances and jobs[11].

As the traditional or face-to-face teaching methods encourage passive learning, they do not take into account the individual differences and learners' needs and ignore problem-solving, creative thinking and other high-level cognitive skills, and usually they are not effective either. As such, many experts have mentioned the need to change or supplement the traditional teaching methods [12]. On the other hand, organizations encounter new needs in the human resources sector, in which the traditional training models do not fully meet these needs and the specific conditions of some of them. Here, the distance education system is one of the available solutions especially E-learning. E-learning is a wide range of applications and computer-based learning methods, web-based learning, virtual classrooms, and so on [13].

E-learning is an important part of training to improve the human resources of organizations. In any place and at any time, learning and its flexibility inherent and its lower cost than face-to-face training, has made it attractive to organizations, in which this attractiveness continues to grow [14]. In this regard, Zhang and Huang [9] identified four important benefits of E-learning for society: flexibility, interactivity, resource sharing, and openness. The conducted studies reveal that E-learning is a successful and efficient system if the content is properly compiled and evaluated correctly, based on which its use in the Iranian educational system is recommended [15].

According to the above descriptions, it can be said that employee empowerment is considered as one of the basic and effective strategies in terms of maintaining and productivity of human resources, in which paying more attention to human resources training can be the basis of empowerment and finally productivity of employees will be provided in the organization [16]. Therefore, regarding that E-learning has been proposed to solve the problems of traditional education in recent years that is utilized in all organizations, including Birjand University of Medical Sciences, this paper aims to assess the employee satisfaction of Birjand University of Medical Sciences, the E-learning courses, and its role in their productivity.

METHODS

This paper was conducted as a descriptive-analytical cross-sectional study. Its statistical population was the administrative staff of Birjand University of Medical Sciences. Sampling was carried out by quota method, so that the employees were chosen from different parts of the university and available. Here, the inclusion criteria are as follows: willingness to participate in the study, having at least 2 years of experience in participating in in-service electronic training exams. In addition, the exclusion criterion is an unwillingness to continue cooperation. In this paper, the sample size was calculated by considering the confidence level of 0.95, standard deviation of

0.9 [8], accuracy of 0.1, and drop of 5%, based on which 326 people were calculated using the formula below.

$$n = \frac{z_{1-\frac{\alpha}{2}}^2 \cdot \frac{p \cdot q}{d^2}}{d^2} \quad (1)$$

To select the samples, in first, a list of employees who participated in virtual training courses in 2017 and their names registered in the employee-training unit was prepared. The names and surnames of the employees were entered into Excel software and this software was employed for random selection of employees. In this paper, the collection tools were two productivity manpower questionnaires of Hersey and Blanchard and Goldsmith as well as the employee satisfaction questionnaire by holding the virtual courses. Note that the productivity manpower questionnaire of Hersey and Goldsmith was developed based on the ACHIEVE model of Hersey and Goldsmith (1980). This questionnaire contains 26 questions with Likert scale to investigate even dimensions of human resource productivity of this model.

Questionnaire is based on the dimensions of ability (Questions 1-3), comprehension (Questions 4-7), motivation (Questions 12-15), organizational support (Questions 8-11) feedback (Questions 16,17,18,19), validity (Questions 20-23) and compatibility (Questions 24-26). Answers on Likert 5 scales from very low (i.e. score 1) to very high (i.e. score 5) so that the higher the score, the more productive it was. This questionnaire is a standard questionnaire whose validity has been confirmed. The reliability of this questionnaire was obtained in Kasiri and Kamalzadeh studies using Cronbach's alpha coefficient of 0.89 [18]. The employee satisfaction questionnaire by holding the virtual courses was first designed and used by Harriston[19].

Both the validity and reliability of this questionnaire in Iran was surveyed and confirmed by Alavi and Shariati (8) in 2008, in which Cronbach's alpha coefficient for three categories of content (Questions 1-5), presentation method (Questions 6-12) and E-learning program (questions 13-17)) were obtained 0.76, 0.84 and 0.81, respectively. Answers on Likert 5 scales were a choice from strongly agree (i.e. score 5) to strongly disagree (i.e. score 1). The questionnaires were distributed among the employees after obtaining the necessary permits and after completing the samples, the information was entered into SPSS V.22 statistical software. To analyze the data, descriptive statistics (central indices and dispersion) and inferential statistics (Spearman, Kruskal-Wallis, and Mann-Whitney tests) were employed.

RESULTS

In this paper, 318 people with a mean age of 34.69 ± 7.89 and work experience of 10.04 ± 7.97 participated, of which 65.4% (about 208 people) were women while the rest were men. More than half of the participants (52.8%) were engaged in health care. The majority of people (61.9%) had a bachelor's degree in terms of the type of formal employment (46.2%). In order to compare the domains of satisfaction and productivity, all responses were calculated from 100. Afterwards, the mean scores of satisfaction and

productivity were obtained as 66.89 ± 12.68 and 53.91 ± 12.16 , respectively. The highest mean score of satisfaction was achieved in the field of E-learning program, while the highest productivity was obtained in terms of ability and adaptation, and the lowest productivity was obtained in the field of motivation and organizational support, respectively.

Table 1 The comparison of the mean satisfaction of E-learning courses and employee's productivity and its areas

Variables		Min	Max	Mean±SD
Satisfaction	content	20	100	64.41± 15.90
	Method of presentation	20	100	64.77±15.86
	Training program	20	100	72.36±16.98
	total	32.94	100	66.89±12.68
Productivity	ability	13	100	63.66±16.47
	understanding	20	100	55.53±14.24
	Organizational support	20	100	49.00±16.72
	motivation	10	100	44.01±16.47
	feedback	15	95	58.50±15.61
	credibility	15	100	52.44±17.46
	compatibility	13.33	100	60.85±19.63
	total	21.54	94.62	53.91±12.16

Spearman correlation test was employed to assess the correlation between employee satisfaction and productivity due to the abnormality of the satisfaction variable. Table 2 reports a significant positive correlation between satisfaction and productivity and in all its areas ($p < 0.05$). In other words, people who were more satisfied with E-learning courses also had higher productivity.

Table 2 Correlation between the satisfaction of E-learning courses with employee productivity and its areas

Variables		r	p-value
Satisfaction	ability	0.31	0.025
	understanding	0.43	0.009
	Organizational support	0.41	0.011
	motivation	0.36	0.018
	Feedback	0.40	0.012
	Credibility	0.40	0.012
	Compatibility	0.21	0.034
	Total	0.49	0.003

In the content of the training course, the highest satisfaction is related to the item "Relationship between the training course and the job", in the field of the method of providing training, it is related to the item "makes learning better", and in the field of E-learning program, it is related to the item "I recommend the use of E-learning for similar issues". According to the obtained results of Table 3, the mean productivity score has no significant relationship with any of the demographic variables of gender, occupation, education, and type of employment, while the mean satisfaction score is higher in people with less

than a bachelor's degree that has a significant difference with others. There was no significant relationship between satisfaction with gender, occupation, and type of employment.

Table 3 The comparison between mean satisfaction with E-learning and productivity in terms of demographic variables

		Satisfaction		Productivity	
		Mean±SD	P-value	Mean±SD	P-value
gender	Female	56.16±10.93	0.073	69.79±15.77	0.754
	Male	58.43±10.31		70.39±15.71	
Job category	Health	57.41±11.02	0.671	70.16±15.59	0.852
	Administrative-financial	56.54±9.83		71.11±16.16	
	Educational-Cultural	55.56±11.05		69.09±15.83	
	Engineering	56.22±11.44		67.72±17.77	
	Etc	56.18±12.85		66.72±17.29	
Level of education	Undergraduate	60.74±10.25	0.042	68.51±13.31	0.134
	Bachelor	56.91±10.68		70.74±16.45	
	Master's degree and above	55.31±10.98		69.02±15.11	
Type of Employment	Formal or Permanent	56.29±11.38	0.193	68.10±15.75	0.162
	Semi-formal	58.40±8.41		75.28±14.42	
	Contractual	55.34±10.68		70.11±16.99	
	Under the supervision of the company	59.20±11.21		71.34±16.05	
	Conscription law's conscripts	54.82±9.33		69.00±13.81	

DISCUSSION

The obtained results indicate that the studied employees were significantly satisfied with the E-learning courses (66.89±12.68). The results of Alavi and Shariati studies [8], Mahdiun et al. [20], Delshad et al. [21], Ebrahimi Kooshak et al. [9] are in accordance with the results of the current research. Ebrahimi Kushkak et al. mentioned that a significant percentage of the university employees confirmed this method of education, desired to have it, and agreed that it was effective. The employee participation in the training courses without the need to spend time outside office hours, the quality of E-learning courses, online interactions between learners and instructors, and forums for the exchange of views, etc. can be mentioned the reasons for satisfaction with the in-service electronic training program.

The highest mean satisfaction score of the current research is related to the E-learning program, whereas the lowest mean satisfaction score is related to the educational content. Delshad et al. described the satisfaction with the order of satisfaction was 48.33% (in terms of the program presentation method), 43.5% from group participation on the line (in terms of program content), 4.66% from registration and obtaining approval of personal database, the 39.17% from the way of completing the web questionnaire, 45.33% from the working

group with the instructor, and 35% from the proportion of the content of the LMS sessions with the job needs of the employees (in terms of the executive process of E-learning program) [22]. Among the conducted studies in this regard, it can be mentioned the study of Gilavand and Hosseinpour [23], Delshad et al. [21], Alavi and Shariati [8].

According to the results of Gilavand and Hosseinpour [23] study, the highest level of satisfaction was related to the virtual education program viaa mean satisfaction of 4.17, whereas the lowest one was related to satisfaction with the content of training courses viaa mean satisfaction of 3.76. Besides, Ismaili et al. [24] and Rastegarpour and Gorjizadeh [25] mentioned the unfavorable situation of E-learning in terms of educational content. The content provided should be designed based on meeting the needs of users so that managers should be careful to choose and design appropriate content to increase the level of productivity, in which improving the quality of training course content is essential. Alavi et al. [26] expressed that by increasing the level of satisfaction with the educational content and overall satisfaction of employees, their learning rate could be increased as well [26].

The current research indicated that the mean productivity score is 53.91 ± 12.16 . The highest productivity was obtained in terms of ability and adaptability, respectively, whereas the lowest productivity was obtained in terms of motivation and organizational support, respectively. Meanwhile, the results of this paper are inconsistent with Moghaddas and Nori [27]. The results of their study showed that although in-service training increases the overall productivity of physicians, but in the areas of ability, job recognition, organizational support, decision validity and environmental factors, in-service training has not been able to have a significant effect on physicians' productivity [27]. Furthermore, The results of Samadi and Karimi [28] and Asghari and Jalilian [29] are not in accordance with the current reseach. The results of Asghari and Jalilian study confirmed that in-service training had not been able to make significant changes in productivity variables including human relations, employing change and innovation and observing the job duties of trained employees [30].

The reason for the difference in the results can be related to the difference in the statistical population, the training courses held (training titles), the content of the courses. Physicians and managers of organizations, want to hold courses with rich content and educational methods due to their busy schedules. Accordingly, the continuous evaluation of in-service training programs is necessary to eliminate possible shortcomings. The results of this paper in the terms of increasing employee empowerment and productivity, with the study of Heidarinejad et al. [31], Rabiee et al. [4], Amin Shayan Jahromi et al. [32], Nekouei Moghadam and Mir Rezaei [33] and Mirzaei et al. [34] is consistent. The results of Mirzaei et al. Indicate that there is a significant relationship between in-service training, productivity, increasing self-confidence, and adaptability among employees.

Correct and proper implementation of in-service training courses is the appropriate solutions for employee empowerment, in which if this is

performed properly, the efficiency and productivity of employees is guaranteed so that organizations can hire experts to train for their futures. Regarding the overall goal, the study of the results confirms a significant positive correlation between satisfaction and productivity in all its areas ($p < 0.05$). In other words, people who were more satisfied with E-learning courses, also included higher productivity. This result is in accordance with the results of Qahramani and Mostafavi[35]. In the study of Fallah Digsara and Hemmatpour[36], it is mentioned that by creating a virtual learning and training system, organizations can help their employees to achieve more desirable and optimal organizational performance, which increases productivity and efficiency. Hence, the optimal and effective performance of employees in the organization will make them more empowered and able to use their potential and ability to help the organization to accomplish its goals and plans.

This result is consistent with the results of the current research. Due to the progress of science, systematization, and competitiveness of the organization, the need for in-service training is mandatory for employees to be trained from time to time previously trained and new sciences. In this paper, it was found that there is a correlation between satisfaction and productivity. The more satisfaction with the training courses, the more willing the employees will be increased to participate in these courses, which would increase their efficiency, capability, and productivity in terms of their works, and ultimately increase the organization and improving the organizational culture.

The current research indicated that the highest satisfaction in the content of the training course is related to the item "Relationship between the training course and the job". The results of Alavi and Shariati [8] and Delshad et al. [22] are in accordance with ones of current research, which show that in the item of satisfaction with the content of training courses, the highest level of employee satisfaction with "the relevance of educational content to their jobs", whereas they have the least satisfaction with the examples and images used in the educational content. This result is in accordance with the result of a study by Mohammad Hadi et al. [37] on "the relationship between training content and the job needs of learner". As such, they have an important role to determine the students' satisfaction. Regarding the level of satisfaction obtained in this item, more planning and attention is critical to improving the content in compiling educational content. The results of Heidarinejad et al. [31] indicate that among the various in-service training courses, the specialized courses are the strongest predictors of the empowerment of physical education teachers, which is in accordance with the obtained results of the current study. This is because increasing the professional knowledge and awareness of people in their tenure, increases their sense of competence and efficiency. Therefore, it is necessary for the provider of in-service training courses to pay more attention to this important issue.

The results indicated that there was no statistically significant relationship between any of the demographic variables (gender, occupation, education and type of employment) and productivity score. The current study is in accordance with the results of the study of Rabiee et al. [4]. They mentioned

that in-service training is essential for all professionals of all ages or levels of education and work experience. The results indicated that the mean satisfaction score was higher in people via less than a bachelor's degree, which as a significant difference with others. Thus, it is not consistent with the results of Alavi and Shariati [8], Gilavand and Hosseinpour[23], and Mirkamali and Saadati[38] studies regarding the relationship between degree and satisfaction, but they were in accordance with other demographic variables (gender, occupation and type of employment). Gilavand and Hosseinpour expressed that the contextual variables such as work experience, type of employment, degree, and gender, did not affect employees' satisfaction with participating in the E-learning courses.

The results of Delshad et al. [22]revealed that there was a significant relationship between overall satisfaction and demographic characteristics (work experience, occupation, employment status) that were different from the present study, but in terms of characteristics (gender and Degree) was consistent. Considering the similarity of the studied populations in Alavi and Gilavand study, which were both performed on health care system employees, finding similar results is justifiable. Thus, E-learning can be utilized for the in-service training of employees without considering the underlying variables such as gender, education, type of employment, and work experience. It should be noted that as this paper includes a wide range of employees with different occupations, education, and type of employment, so it can be expressed as the strength of the study can also be generalized.

CONCLUSION

According to the obtained results, it can be said that employees who are more satisfied with E-learning courses, also have higher productivity. Therefore, the need to pay attention to the quality of the in-service training for some similar issues is obvious in the specialized areas of employees.

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CONFLICTS OF INTERESTS

The authors have declared that no competing interests exist.

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REFERENCES

- Yaseen, Z., & Khanfar, M. (2009). Sales training effectiveness: Managers perceptions in the United Arab Emirates organizations. *The Business Review, 13*(2), 120-128.
- Movahed, S.S., Mirahmadi, K., & Salehi, M. (2013). Evaluate the effectiveness of virtual training courses and its role in promoting the

- professional performance of teachers. *Organizational Behavior in Education, 1*(2), 23-34.
- Ghahremani, G.A., & Mostafavi, A. (2016). The Impact of In-Service Training on Empowerment of Qazvin Province Government Personnel from the Point of View of its Learners. *Jornal of Development Evolution Managemet, 23*, 63-74.
- Rabiee, F., Moayedi, S. N., Naderi, Z., Aliabadi Farahani, K., & Shamsi, M. (2011). Effect of in-service educational courses on human resources efficiency from university experts' point of view. *Educ Strategies Med Sci, 4*(2), 85-9..
- Nekouei-Moghadam, M., & Mirrezaei, N. (2005). The effect of in-service training on the efficiency of employees of Kerman University of Medical Sciences. *Journal of Health Infomation Management, 2*(1), 40-6.
- Fathi Vajargah, K. (2010). *Planning on In-Service Training for Staff*. Tehran: SAMT Publication.
- Hatami, H. (2010). An Evaluation of the Efficiency of the In-service Training Offered by the Human Resources Study Department in. *Quarterly Journal of New Approaches in Educational Administration, 1*(3), 77-100.
- Alavi, S., & Shariati, M. (2010). Investigating Employees Satisfaction with E-learning Courses in Tehran University of Medical Sciences. *Iranian Journal of Medical Education, 10*(3), 200-210.
- Ebrahimi, K.M.S., Asadi, R., Ghodousi moghadam, S., Deldar, K., & Movahhed, M. (2020). Assessing the Attitude of Employees at Mashhad University of Medical Sciences, Iran, Regarding In-service Online Training Courses. *Magazine of Elearning Distribution In Academy, 2*(2), 11-16.
- Kazempor, E., & Gafari, K. (2011). A Feasibility Study of Establishing a Virtual in-service Training System in Islamic Azad University. *Quarterly Journal of New Approaches in Educational Administration, 2*(5), 167-93.
- Lee, W.R. (2006). Computer-based learning in medical education: a critical view. *Journal of the American College of Radiology, 3*(10), 793-798.
- Khatoni, A., Nayery, N. D., Ahmady, F., & Haghani, H. (2011). Comparison the effect of Web-based Education and Traditional Education on Nurses Knowledge about Bird Flu in Continuing Education. *Iranian journal of medical education, 11*(2), 140-148.
- Bakhtari, A., & Tabarsa, G. Satisfaction of government employees with E-learning system (Case study: Ministry of Health and Medical Education staff) 6th National Conference and 3rd International Conference on E-learning and Learning
- Alavi, S., Makarem, J., & Namazi, A.R. (2010). Implementation of staff in-service electronic training managers and employees of Tehran University of Medical Sciences view. *Education Strategies in Medical Sciences, 3*(2), 47-50.
- Zolfaghari, M., Mehrdad, N., Parsa Yekta, Z., Salmani Barugh, N., & Bahrani, N. (2007). The effect of lecture and E-learning methods on learning mother and child health course in nursing students. *Iranian Journal of Medical Education, 7*(1), 31-39.

- Khorasani A, Javanbakht A, Shamseddin.Chavoshi S. The Effect of In-Service Training on Human Resources Empowerment Dimensions. *Quarterly Journal of Training & Development of Human Resources*. 2016; 7(3): 1-20.
- Hersey P, Goldsmith M. A situational approach to performance planning. *Training and Development Journal*. 1980; 34(11): 38.
- Kasiri M, & Kamalzadeh, H. Investigating the Factors Affecting the Increase of Manpower Productivity Based on the Hersey and Goldsmith Model (Acio Model) (Case Study: Six Gas Transmission Operations Area). *New Research in Management and Accounting*. 2016; 3(11): 89-106.
- Hairston NR. Employees' attitude toward E-learning : Implications for policy in industry environments [Ph.D. thesis]: University of Arkansas; 2007.
- Mahdiyoun SA, Imanipour M, Mojtahedzadeh R, Hosseini AF. Comparison of Effectiveness of Interactive and Non-interactive Virtual Education about Brain Death and Organ Transplantation on Knowledge and Satisfaction of Critical Care Nurses. *Journal of hayat*, 2015; 21(2): 40-53.
- Delshad Mh, Heidarnia A, Niknami S. Investigating Healthcare Personnel's Satisfaction with Quality of Web-based Learning in Teaching Preventive Behaviors of Hepatitis B Virus Infection. *Iranian Journal of Medical Education*. 2014; 14(9): 806-16.
- Delshad MH, Hidarnia A, Hidarnia MA, Niknami S, pourhaji F. Quality of satisfaction of health personnel about web-based education in order to preventive intervention for hepatitis B: USP educational intervention. *Medical Sciences Journal*. 2016; 26(2): 99-108.
- Gilavand A, Hosseinpour M. Investigating Employees' Satisfaction with E-learning In-service Training Courses at Ahvaz Jundishapour University of Medical Sciences and Health Services in 2014. *Educational Development of Judishapur*, 2015;6(3):253-60.
- Esmaeeli H, Rahmani s, Kazemi A, Aliahmadi M. Evaluation of E-learning of the virtual learning program from the student's point of view. *Management Researches*. 2017; 9.41-221:(34)
- Rastegarpour H, Gorjizadeh S. Evaluation of the Effectiveness of E-learning Courses in Tarbiat Modares University from the Users' Perspectives: Islamic Azad University, Sari Branch; 2012. 5-30 p.
- Alavi S, Ebrahimzadeh I, Karimzadegan Moghadam D, Ataran M, Mehrdad R, Golestan B. An evaluation of a new rapid E-learning approach for staff in-service training at the TUMS. *Iranian of higher education*. 2010; 2(3): 88-67.
- Moghadas T, Nouri A. The Effect of in-Service Training on Physician's Productivity in Health Centers: A Semi Experimental Study. *Journal of Healthcare Management*. 2019;9(4):19-26.
- Samadi P, P K. The role of human-ware in the efficiency of the human resources from the perspective of Alzahra University's administrators and staff. *The Journal of New Thoughts on Education*. 2009; 5(4): 43-66.
- Asghari F, Jalilian HR. Studying the effect of on-the-job training courses on employees. 2. 2012; 4(3).
- Parvin Samadi, Karimi P. The role of human-ware in the efficiency of the human resources from the perspective of Alzahra University's

- administrators and staff. *The Journal of New Thoughts on Education*. 2009; 5(4): 43-66.
- Heydarinejad S, Bahrami M, Azmsha T. Study of effect of in-service training courses on empowerment of physical education teachers. *Applied Research in Sport Management*. 2012; 1(2): 81-8.
- Aminshayan Jahromi S, Bagheri K, Najarpour A, Akbari R. The Effect of in-Service Training Courses on Empowerment and Productivity, Managers and Employees. *Scientific Journal Management System*. 2017;7(28):131-48.
- Nekouei-Moghadam M, Mirrezaei N. The effects of in-service trainings on productivity of main office personnel of Kerman University of Medical Sciences, 2002. 2007. 2007.
- Mirrezaei SH, Ayoubi A, Mosallanejad A, Mousavifard F. The effect of in-service training on employees' productivity in education and training organisation, Shiraz, Iran. *International Journal of Productivity and Quality Management*. 2018; 24(1): 134-42.
- Ghahremani Golozan A, Mostafavi A .The Impact of In-Service Training on Empowerment of Qazvin Province Government Personnel from the Point of View of its Learners: Qazvin Islamic Azad University; 2016. 63-74 p.
- Falah Dygsara P, Hemmatpour M. The effect of the new virtual training programs of Academic Jihad on performance, empowerment and career advancement Talesh literacy movement trainers. *the 2^{ed} national conference on Iranian Management and Accounting*, 2018.
- Hadi FM, Vojargah KF, Pardakhtchi MH, Abolghasemi M. Analyzing of the trainees satisfaction of in-service training Based on Importance-Performance Analysis (IPA) model. *Biennial Journal of Management and Planning in Educational Systems*. 2011; 4(6): 32-53.
- Mirkamali SM, Saadati Tabar F. A study of the stakeholders' satisfaction level from in- service training process at Industries Development And Renovation Organization of Iran (IDRO). *Journal of training and development of human resources*. 2016; 2(7): 101-23.