



# The Relationship of Environmental Architecture with the Level of Job Satisfaction and Productivity among the Employees of Islamic Azad University, Shiraz Branch

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## Abstract

**Introduction:** This study was designed to investigate the relationship of the environmental architecture and job satisfaction with productivity in the staff of Azad universities.

**Methods:** In this cross-sectional descriptive-analytic study, out of a total of 400 employees of the colleges of the Islamic Azad University of Shiraz, 186 subjects were included as a sample group by using MORGAN's table for sample size. Data were collected using demographic information checklist, staff physical administrative environment questionnaire, Minnesota Job Satisfaction Questionnaire, and Hersey-Goldsmith's Productivity Questionnaire. To describe the variables, we used descriptive statistics including mean indexes, and standard deviations. The data were analyzed using SPSS version 22. Pearson Correlation Coefficient was used to measure the relationship between quantitative variables and productivity score. The level of significance was  $p < 0.05$ .

**Results:** The results indicated that the participants were middle aged ( $41.45 \pm 6.8$ ), and had an average work time of 8 hours each working day and a work record of 11 years. Also, most of them were male and married, and more than 60% of them had a bachelor's or master's degree. Overall, the quality of environmental architecture index (mean  $\pm$  standard deviation of  $58.04 \pm 10.20$ ) had a direct significant correlation with the total productivity score ( $P = 0.001$   $r = 0.63$ ). The environmental architecture index with job satisfaction showed a significant direct relationship ( $r = 0.57$   $P = 0.02$ ).

**Conclusion:** The environmental architecture index with the dimensions of ability, perception, support, and feedback from the dimensions of productivity was related only to the internal dimension of job satisfaction. Regarding the relationship of physical conditions with job satisfaction and productivity, it is suggested that the organizations should increase the quality of physical environment in order to improve the productivity of the employee.

**Keywords:** Environment, Architecture, Job satisfaction

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## Introduction

Employees interact with their surroundings while working. Therefore, the quality of the work environment can affect their job satisfaction, performance, well-being and productivity. The work environment architecture plays a vital role for employees, and its quality can determine the level of motivation, performance and productivity (1).

Productivity is a factor that expresses how much an organization converts the input resources into goods and services. Employee's productivity is affected by several factors including health, comfort and security, motivation and job satisfaction. Previous studies have shown that physical environment and office building play a fundamental role in the productivity of employees. The ability to control the environment

is very important and affects the productivity (1). Sukdeo (2017) indicated that there was a very strong casual effect between the work environment and employees' satisfaction which leads to increased productivity (2).

Also, the design of the workplace is one of the factors affecting job satisfaction (1). Job satisfaction is a complex and multidimensional concept that is related to psychological, social and physical factors. In other words, job satisfaction is a general feeling of a person regarding his or her job and its various aspects (3). In the last decades, organizations have shown special importance for two issues of job stress and job satisfaction. Physical and mental factors in the workplace cause job stress and can affect productivity (4).

Today, the importance of improving the quality of work life, safety and overall performance of a person is more specific in the organization, and it (human and systems' performance) can be improved by optimizing the fit between human, machines, environments (5). In a cross-sectional study conducted by Zakeriyan et al. (1394), 150 employees from 22 different branches of one of the banks of Tehran were surveyed. In this study, the relationship between environmental factors including chairs, temperature, sound, and environment layout for the employees' productivity was reviewed. The results showed that proper and high-quality design of the work environment had a positive effect on the staff productivity. In other words, the design of a comfortable and ergonomic work environment will increase their productivity by taking into account the needs of individuals and meeting the demands of the employees (1). Clements-Croome et al. (2000) showed that many factors including crowded work areas, lack of job satisfaction, inappropriateness of physical workplace environment, and dissatisfaction with physical instruments affect the productivity and reduce the work output (6). In another study, Ahmadi et al. (2016) showed changes in the workplace with goals such as raising productivity level, reducing fatigue, improving physical health, increasing safety and job satisfaction, improving production quality, reducing reimbursement costs and also organizational credibility (7). Also Osibanjo et al. in 2014 showed that job satisfaction and commitment among nurses in Nigeria can be boosted by providing an environment that is conducive and adequately secured (8). In a review published by Fadda in 2018, he stated that environmental conditions including lighting, room design, ventilation improvements, ergonomic design of the equipment, noise reduction, and security enhancement would improve the staffs' performance and work quality (9).

The review of many studies on workplace productivity showed that the design of the work environment was not considered. In addition, the role of internal factors (such as job satisfaction) and external factors (such as environmental architecture) has not been simultaneously addressed. Regarding the importance of the quality of the staff university performance, this study aimed to investigate the relationship between environmental architecture and job satisfaction in colleges of Azad University.

## Methods

In this cross-sectional descriptive-analytical study, a total of 186 employees of Islamic Azad University

of Shiraz University of Medical Sciences as the samples available participated. Inclusion criteria for participation in the study were having at least 20 years of age, having one year of work experience, and working 6 hours per day. Participants were excluded if they had a history of physical and mental disorders.

The data gathering tool was a demographic information questionnaire, an employee's office environment architecture questionnaire, Minnesota's job satisfaction questionnaire, and Hersey-Goldsmith's productivity questionnaire. The demographic information questionnaire was used to gather the general information about age, sex, marital status, work experience in the current job, education level and working hours.

The environmental architecture questionnaire used in this study was designed by Hamid et al. (2009). This questionnaire has an appropriate reliability and validity of (0.81) (10). The questionnaire has 24 questions with five options, with 20 questions in 5 parts which are about the chair (adjustability and comfortability), sound (distraction and the presence of noise during operation), lighting (the amount of lighting, control over the brightness, amount of natural light reaching the workplace, number of work windows), temperature (the summer and winter conditions, ability to control the workplace temperature), and the equipment layout in the workplace (the open space around the workplace, suitability of the layout, space required for placing the office appliances) and the other four questions are related to productivity. To quantify the data, the five point Likert scale was used.

Minnesota Job Satisfaction Questionnaire (MSQ) including 19 items and 6 payment system subscales (3 questions), job type (4 questions), opportunities for improvement (3 questions), organizational climate (2 questions), leadership style (4 questions), and physical condition (3 questions) was used to measure job satisfaction. The Minnesota Job Satisfaction Score is a Likert Spectrum Scale in which the options "Absolutely disagree", "Disagree", "No Comment", "Agree" and "Totally Agree" are respectively considered to points 1, 2, 3, 4, and 5. In order to obtain the overall rating of the Minnesota Job Satisfaction Questionnaire, all the scores of the items were added together. At the end, job satisfaction rank was considered in three levels (19-38: poor job satisfaction, 38-57: average job satisfaction, score > 57: high job satisfaction). The reliability of the Minnesota job satisfaction questionnaire was reported by using Cronbach's alpha test with (0.86) coefficient (11), and its validity was confirmed by university professors.

Hersey-Goldsmith’s productivity questionnaire includes 26 questions and 7 following aspects:

Ability: Questions 1 to 3; Understanding: Questions 4 to 7; Organizational Support: Questions 8 to 11

Motivation: Questions 12 to 15; Feedback: Questions 16 to 19; Validity: Questions 20 to 23; Compliance: Questions 24 to 26;

This questionnaire is based on Likert’s five-point scale. The scores of this questionnaire range from 26 to 130. The higher the score, the more the staff’s productivity (11-13). The validity and reliability of Hersey-Goldsmith’s productivity questionnaire was reported by a previous study (12).

After obtaining the consent forms, the questionnaires were distributed by the researcher and then collected. The study was approved by the Research Ethics Committee of Azad University, Shiraz branch. The descriptive analyses including mean and standard deviations were used to describe the variables. Pearson Correlation Coefficient was used to measure the relationship between quantitative

variables and the productivity score. The significant level was considered at  $P < 0.05$ .

**Results**

The demographic variables of the participants are presented in Table 1. Table 2 shows descriptive patterns of productivity and job satisfaction. As shown in Table 2, the “feedback” element of productivity dimensions and “the internal” aspect of job satisfaction dimensions had the highest scores. Also, the descriptive statistics of the environment architecture showed that brightness has the highest score among the components of the environment architecture (Table 3).

The findings showed that the quality of environmental architecture index had a direct significant correlation with productivity dimensions including ability, perception, protection, and feedback (Table 4). Also, the Pearson correlation test revealed only a significant correlation between environmental architecture index and internal dimension of job satisfaction ( $P = 0.006$ ,  $r = 0.61$ ).

**Table 1:** Demographic Characteristics of the Participants

Features		Minimum	Maximum	Average±Standard deviation
Quantitative features	Age (year)	23	60	41.45±6.8
	Job experience (year)	1	28	11.95±6.23
	Working hours (hours/per day)	6	13	8.48±1.15
Qualitative features		Assortment	Amount	Percentage
	Sex	Woman	59	31.7
		Man	127	68.3
	Marital status	Single	30	16.1
		Married	156	83.9
	Education	High school diploma	12	6.5
		Diploma	22	11.8
		Associate Degree	29	15.8
		Bachelor	59	37.1
Masters		45	24.2	
	Doctoral	9	4.8	

**Table 2:** Descriptive Statistics of Productivity and Job Satisfaction Dimensions of the Participants

Dimensions of productivity and Job Satisfaction		Average	Standard deviation
Productivity	Ability	8.43	2.61
	Perception& Recognition	10.87	2.43
	Organizational support	11.08	2.41
	Motivation	10.43	2.92
	Feedback	11.25	2.50
	validity	10.81	2.90
	Compatibility	8.66	2.65
	Total job productivity	71.10	13.08
Job Satisfaction	Internal Job Satisfaction	34.07	6.43
	External Job Satisfaction	32.80	5.83
	Total job satisfaction	66.90	11.54

**Table 3:** Descriptive Statistics of the Environmental Architectural Indicator

Components of the environment architecture	Average	Standard deviation	Minimum	Maximum
Chair	11.70	2.50	7	20
Sound	11.52	2.40	4	17
Temperature	11.52	2.30	4	20
Brightness	12.05	2.97	4	20
Layout	11.21	2.97	4	19
Total	58.04	10.20	29	85

**Table 4:** Relationship between Environmental Architecture Index and Productivity Level Using Pearson Test

Dimensions of productivity	Correlation Coefficient	P value
Ability	0.64	0.001 *
Perception	0.65	0.006*
Protectiosn	0.58	0.01 *
Motivation	0.48	0.22
Feedback	0.63	0.002 *
Validity	0.54	0.05
Compatibility	0.54	0.55

## Discussion

The results of our study confirmed the first hypothesis as to the relationship between the environmental architecture index and job productivity, i.e. the higher the score of this index, the higher the job productivity. This implies that the environmental architecture index was related only to the dimensions of productivity, such as ability, understanding, support, and feedback. It seems that other dimensions of productivity (motivation, validity and compatibility) were more affected by the organization's performance and less affected by physical environmental factors. This is consistent with the results of the study conducted by Zakeriyan et al. (1), Clements-Croome et al. (6), Leblebici et al. (14), and Lan et al. (15). The quality of environmental conditions such as chair, lighting, temperature, sound and layout affects the staff productivity. In other words, the proper design and quality of the work environment, which takes into account the needs of individuals and meeting their needs, increase the staff's productivity.

The second hypothesis of the research on the relationship between the environmental architecture index and job satisfaction was also confirmed, indicating that the better the architecture of the environment, the higher the job satisfaction of the employees. This result is consistent with those of Ahmadi et al. (7), Ramalho-Pierce D'Almeida et al. (16), and Fadda (17). In their studies, it has been shown that interventions in the environment and creation of more favorable environmental conditions increase the employees' satisfaction. Also, it is consistent with the research results of the Goetz et

al. who made a strong relationship between the work environment conditions and job satisfaction (18). The findings of our study are not consistent with the results of the Darvish's article (19). Darvish et al. reported that job satisfaction was influenced by the organization's policies and procedures and an individual's personality, while these aspects were not included in our study.

Several factors such as the presence of indoor office flowers and plants; colors; privacy; psychological and mental conditions; relaxing outdoors; and having a view outside the work environment (office window views) are related to job productivity and satisfaction. It is suggested that the relationship of these factors with productivity and job satisfaction should be considered in future studies.

The results of this study suggested solutions to the relevant authorities in environmental architecture by improving the lighting quality, reducing sound, controlling the temperature of the environment, using an ergonomically designed chair and appropriate layout to increase the productivity and job satisfaction. It is also cost-effective to consider these options when purchasing such equipment as seat purchasing, environment improvement and repair.

One of the limitations of this research was the completion of questionnaires at the workplace and in a busy day. It is possible the person who is to fill out these questionnaires is tired and these physical and mental factors might affect the research outcome.

Regarding the relationship of physical conditions with job satisfaction and productivity, it is suggested that the organizations should increase the quality

of physical environment in order to improve the productivity and job satisfaction of employees.

### Conclusion

This study revealed that environmental architecture had a direct relationship with the majority of the dimension of job productivity. Also, there was a significant direct correlation between environmental architecture and internal dimension of job satisfaction.

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**Conflict of Interest:** None declared.

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