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Research Article

Exploring the Link between Job Satisfaction and Productivity among Architects in Architectural Offices

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ABSTRACT

Job satisfaction is an important factor that directly affects an employee's productivity. The relationship between job satisfaction and productivity is a critical factor in many professions, including architecture. Therefore, it is important that they are satisfied with their jobs in terms of productivity. The aim of this study is to examine demographic features, job satisfactions and productivity levels of architects working in architectural offices in Bursa and to determine whether there is a relationship with each other. In this study, a questionnaire was used as a data collection method. A survey was conducted with 203 architects working in Bursa. The survey consists of 3 parts. In the first part demographic features, in the second part job satisfactions and in the third part, there are questions about productivity. According to the findings, the correlation coefficient value between the productivity of job satisfactions in the working environment is between 0 and 0.50, revealing the importance of job satisfaction and productivity for the companies and the employees. As a result of the research, it was concluded from the correlation analysis that the parameters of architects' job satisfactions were effective on productivity. It has been observed that the productivity of the employees who are satisfied with their job, organization of the working environment has also increased. In terms of architects, it is thought that this study will contribute to the scientific field in terms of the absence of a study examining the three issues together and reflecting the perspectives of architects on their profession. In the context of architectural offices, studies examining job satisfactions or productivity are very limited.

1. Introduction

Architects have many different fields of work. These areas are; public institutions, architectural offices, design offices, construction sites, supply and production companies for the building sector and building inspection companies, etc. [1]. Architects spend most of the day in the office. For this reason, it is important for them to be satisfied with their job in terms of being productive and efficient in their work.

Job satisfaction is the happiness that an employee gets from his job [2]. There are two main factors that can affect the job satisfaction of employees. These factors are; organizational and individual factors. Individual factors; personality factor, ability and mental factor, gender, education, marital status, age, status and seniority. Organizational factors are; wages, features of the job, working conditions, co-workers, promotion and advancement opportunities and management style [3]. Determining the factors affecting the job satisfaction of the architects working in the office and making the necessary improvements will increase the internal and external satisfaction levels of the architects. Increasing satisfaction levels of employees will increase input/output results in the organization.

There are numerous studies on architects' professional responsibilities, their future in the

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profession, working conditions, and job satisfaction. For example, Sang, Ison, and Dainty (2009) explored the job satisfaction of UK architects, revealing that 20 to 40 percent of respondents were dissatisfied with their pay, promotion prospects, and opportunities to use their abilities [4]. They also noted significant work-life balance difficulties among architects. Burr and Jones (2010) discussed the evolving role of the architect, indicating that successful future architects might need to reclaim lost responsibilities and promote higher collaboration levels [5].

Faber (2010) highlighted architects as service providers, emphasizing their crucial role in agile development projects and the importance of participating in coding activities to sustain the architecture's effectiveness throughout a project's lifetime [6]. Rickaby (1979) speculated on the future practice of architecture, suggesting that interdisciplinary practices and design cooperatives could respond appropriately to current and future problems [7]. Kuruçay and Karadağ (2022) investigated the future of architects', indicating a shift in skill requirements and suggesting a reevaluation of architectural education to ensure architects can compete in the future [8]. Salama and Courtney (2013) examined the spatial qualities of the workplace on architects' job satisfaction in Belfast, Northern Ireland, finding relatively high satisfaction levels but identifying significant factors such as control over thermal conditions and acoustics [9].

These studies collectively underscore the complexity of the architectural profession, where job satisfaction intertwines with professional responsibilities, evolving roles, and changing work environments. Future research might delve deeper into how emerging technologies, changing societal expectations, and evolving workplace models impact architects' roles and satisfaction levels.

1.1. Job satisfaction

Before 1933, 32 studies on job satisfaction were examined by Robert Hoppock, the concept of job satisfaction became the focus of attention in the literature. According to Hoppock, job satisfaction is a combination of physiological, environmental and psychological conditions that cause a person to say that he is truly satisfied with his job [10]. Employee's job satisfaction is related to how employees feel, although it is influenced by many external factors. According to Davis and Nestrom, job satisfaction represents the combination of positive and negative feelings of workers towards their jobs. A worker brings with him experiences, needs and desires that determine his expectations at work. Job satisfaction represents matching expectations with actual rewards [11]. Vroom focuses on the employee's role in the workplace. According to Vroom, job satisfaction is defined as the emotional orientations of employees related to their work roles [12].

Many researchers have conducted research on the factors affecting job satisfaction and have reached various findings. McDonald and Gunderson emphasized that wage and years of service are very important for job satisfaction [13]. According to Sydney and Duane Schultz, while individuals are satisfied with some aspects of the work environment, they may be dissatisfied with others. Individuals may not be satisfied with their jobs in all circumstances and may not like every aspect of their job. In general, it is the effects of health status, social life, emotional situations, age and family life [14].

According to Porteous, job satisfaction factors consist of 2 groups. These; individual factors and work-related factors [15]. Individual factors are those that arise due to individual-specific differences. The change created by the individual characteristics in the wishes, expectations and needs of the person causes the job satisfaction to differ. Job satisfaction of an individual varies according to his individual characteristics. These factors are; gender, age, education, personality, intelligence, ability, status and seniority. Organizational factors are the factors provided and created by the organization in order to provide job satisfaction and meet the expectations of the employees. These factors are; wage, job characteristics, working conditions, working group, promotion and advancement opportunities and management style.

1.2. Productivity

According to Prokopenko, productivity is defined as the active use of inputs in the production of different services and goods. Therefore, it explains aiming to save money due to active use of resources and goods [16]. According to OECD (Organisation for Economic Co-operation and Development), productivity is the number of products produced as a result of production divided by one of the products. According to ILO (International Labour Organization), the ratio of suitable products to factors such as capital, labor, land and entrepreneurs is defined as productivity [17].

The main purpose of a business management; raising the income ratio of capital and increasing net incomes. The most important factor in the success of an organization that adapts to market conditions in a timely manner; it is the reduction of the input volume required for the unit output [18]. The second importance of productivity measurement for the organization is the benefits it provides to the organization's management. The basic functioning signs of the organization can only be revealed in a healthy way with productivity measurements. The third importance of productivity measurement for businesses is that it is a more reliable criterion than profitability. Another importance of productivity measurements for businesses is that they allow comparison between businesses [19].

Factors affecting productivity are examined in two groups as internal factors and external factors. Since it is not under the control of the enterprise, it is more difficult to control external factors than internal factors [16]. Table 1 shows the factors that affecting productivity [20].

Table 1. Factors Affecting Productivity

Internal factors		**External factors**		
Solid factors	**Flexible factors**	**Structural resources**	**Natural resources**	**State and infrastructure**
Factory and equipment	Organization and systems	Economic	Manpower	Institutional mechanisms
Product	Human	Population and social structure	Land	Policy
Technology	Working methods		Energy	Infrastructure
Material and energy	Forms of administration		Raw materials	Public enterprises

2. General Methods

The sample of the research consists of architects working in architectural offices in Bursa. In this study, a questionnaire was used as a data collection method.

The survey was mostly applied online due to the conditions of the thesis and the survey form was created via Google Forms. In this direction, a total of 203 architects, 117 women and 86 men, working in architectural offices in Bursa were reached [21].

The survey consists of 3 parts. In the first part, there are questions about demographics. In the second part, a 20-question short version of the Minnesota Job Satisfaction Questionnaire was used to measure the job satisfaction of the architects in the office. The Minnesota Satisfaction Questionnaire is measured at three levels: internal, external, and general satisfaction. 12 questions in the questionnaire are about internal satisfaction, 8 questions are about external satisfaction, and all of the questions are used for general satisfaction [22].

The reason for choosing the Minnesota Job Satisfaction Survey to measure job satisfaction values is that it is reliable, validated and internationally widespread. In the last part of the questionnaire, there are questions about the levels of productivity. A total of 19 questions were determined under 3 sub-headings (economic, psycho-social and organizational managerial factors). A 5-point Likert-type scale was used as the questionnaire scale. The evaluation criteria and score ranges of the answers given to the questionnaire are shown in Table 2.

Table 2. The evaluation criteria and score ranges of the answers

Likert Scale	Options	Ranges	Evaluation Criteria
5	Absolutely agree	4.20-5.00	very high level
4	I agree	3.40-4.19	high level
3	Undecided	2.60-3.39	medium level
2	I do not agree	1.80-2.59	low level
1	I strongly disagree	1.00-1.79	very low level

SPSS 23.0 software program was used in the analysis of the data obtained from the sample through the questionnaire. While investigating the effects of various factors on the sample, analysis methods such as descriptive statistics, Cronbach Alpha reliability coefficient, Spearman Correlation analysis and Mann Whitney U test were used. Non-parametric analysis methods were preferred because the data were not normally distributed.

3. Results and Discussion

When the demographic features of the participants is examined, the participants consist of 117 women (57.6%) and 86 men (42.4%) participants. It was seen that the architects in the 22-30 age group were in the majority with a rate of 61.57%. Users in the 30-40 age group follow the majority with 32.51%. When their marital status was examined, it was seen that 70% were single and 30% were married. When their educational status is examined, 84.70% of participants have bachelor's degree and 15.60% of participants have postgraduate degrees. Values are shown in Table 3.

3.1. Findings on job satisfaction of architects

As a result of the evaluations; general satisfaction value was found to be 3.26 out of 5, internal satisfaction value was 3.28 and external satisfaction value was 3.23. These values were determined as "neutral" according to the score ranges. Based on the data, architects have moderate job satisfaction. The average distribution of job satisfaction levels is shown in Figure 1.

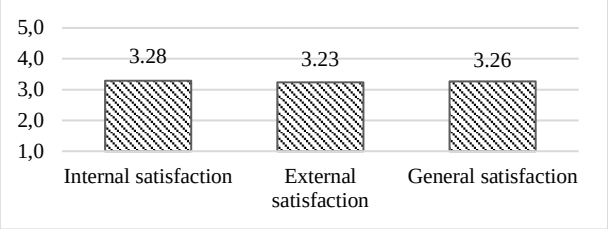

Figure 1. The average distribution of job satisfaction levels.

Table 3. Participants' demographic features

Gender	N	%
Women	117	57.6%
Men	86	42.4%
Age	N	%
22-25	62	30.54%
25-30	63	31.03%
30-34	50	24.63%
35-40	16	7.88%
40-45	9	4.43%
45-50	3	1.48%
Marital status	N	%
Single	142	70.0%
Married	61	30.0%
Education level	N	%
Bachelors degree	172	84.70%
Postgraduate	31	15.30%
Professional experience	N	%
2-5 year	109	54.0%
5-10 year	58	28.70%
10-15 year	19	9.40%
15-20 year	14	6.90%
20-30 year	2	1.00%
Working Time in the Company	N	%
1-5 year	168	82.76%
5-10 year	29	14,29%
10-15 year	2	0.99%
20-30 year	4	1.97%

The frequency and percentage distributions of the internal satisfaction values are shown in Table 4.

Table 4. The frequency and percentage distributions of the internal satisfaction

Parameter		Measures					
		1	**2**	**3**	**4**	**5**	**Total**
Task performed	Freq.	2	12	13	171	5	203
	%	1	5.9	6.4	84.2	2.5	100%
Independence	Freq.	3	34	100	57	9	203
	%	1.5	16.7	49.3	28.1	4.4	100%
Variety	Freq.	2	87	30	75	9	203
	%	1	42.9	14.8	36.9	4.4	100%
Social status	Freq.	3	70	45	77	8	203
	%	1.5	34.5	22.2	37.9	3.9	100%
Moral values	Freq.	1	33	56	103	10	203
	%	0.5	16.3	27.6	50.7	4.9	100%
Security	Freq.	8	87	56	47	5	203
	%	3.9	42.9	27.6	23.2	2.5	100%
Social services	Freq.	1	48	54	90	10	203
	%	0.5	23.6	26.6	44.3	4.9	100%
Authority	Freq.	4	61	54	76	8	203
	%	2	30	26.6	37.4	4	100%
Benefiting from talents	Freq.	2	29	50	110	12	203
	%	1	14.3	24.6	54.2	5.9	100%
Responsibility	Freq.	4	51	50	90	8	203
	%	2.1	25.1	24.6	44.3	3.9	100%
Creativity	Freq.	4	39	32	118	10	203
	%	2	19.2	15.8	58.1	4.9	100%
Achivement	Freq.	2	26	43	122	10	203
	%	1	12.8	21.2	60.1	4.9	100%

1= Strongly dissatisfied, 2=Dissatisfied 3= Undecided 4= Satisfied 5= Totally satisfied

When the internal satisfaction sub-factors of the architects working in the office are examined, some values were found to be higher than the average of internal satisfaction. These values are task performed, achievement, benefiting from talents, creativity and moral values. According to the range of scores, these values are equivalent to "agree". Some values of the sub-factors were found to be lower than the average internal satisfaction value. These values are responsibility, independence, authority and variety.

These values were determined as "neutral" according to the score ranges. Security values were determined as "disagree" according to the score ranges. The average distribution of internal satisfaction values is shown in Figure 2.

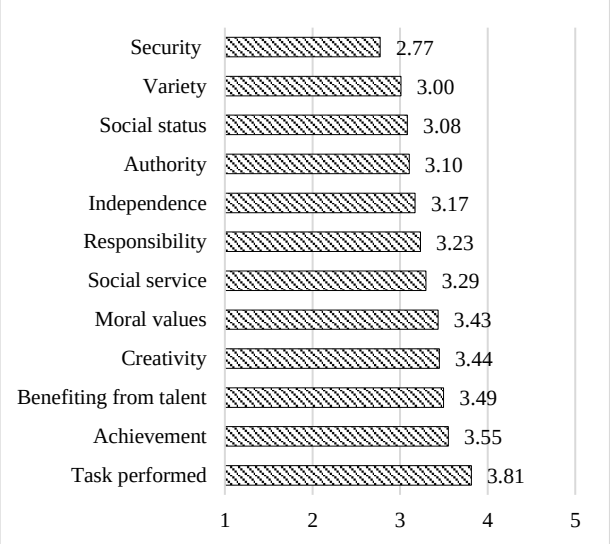

Figure 2. The average distribution of internal satisfaction values

Frequency and percentage distributions of external satisfaction values are shown in Table 5.

Table 5. Frequency and percentage distributions of external satisfaction values

Parameter		Measures					
		1	**2**	**3**	**4**	**5**	**Total**
Management relations	Freq.	2	25	61	108	7	203
	%	1	12.3	30	53.2	3.4	100%
Management's decision making ability	Freq.	2	39	48	103	11	203
	%	1	19.2	23.6	50.7	5.4	100%
Business policies and practices	Freq.	1	36	41	116	9	203
	%	0,5	17.7	20.2	57.1	4.4	100%
Wage	Freq.	7	90	45	54	7	203
	%	3.4	44.3	22.2	26.6	3.4	100%
Promotion and development)	Freq.	4	81	68	43	7	203
	%	2	39.9	33.5	21.2	3.4	100%
Working conditions	Freq.	6	57	60	73	7	203
	%	3	28.1	29.6	36	3.4	100%
Relationships with coworker	Freq.	4	47	42	100	10	203
	%	2	23.2	20.7	49.3	4.9	100%
Appreciation at work	Freq.	2	37	39	116	9	203
	%	1	18.2	19.2	57.1	4.4	100%

When the external satisfaction sub-factors of the architects working in the office were examined, it was seen that some values were high. These values are; business policies and practices, management relations, appreciation, and management's decision-making ability. These values were determined as “agree” according to the score ranges. It was observed that some values of the sub-factors were lower than the average external satisfaction value. These values are working conditions and the relationship with co-workers. These values were determined as “neutral” according to the score ranges.

Wages and promotion-development values were determined as “disagree” according to the score ranges. Average distributions of external satisfaction values are shown in Figure 3.

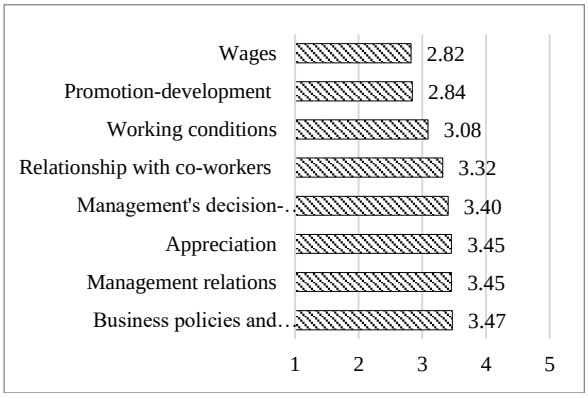

Figure 3. The average distribution of external satisfaction values

3.1.1. Distribution of job satisfaction values by demographic features

Spearman correlation analysis was applied to examine whether there is a statistically significant relationship between job satisfaction and demographic variables. Based on Spearman's correlation analysis, when the correlation coefficient (r) is <0.20, there is a very weak relationship or no relationship, a weak relationship when r= 0.20-0.39, and medium level when r= 0.40-0.59 relationship means a high level relationship when r= 0.60-0.79, and a very high level relationship when r= 0.80-1.00 (Şen, 2016).

A statistically significant and weak relationship was found between job satisfaction factors and demographic variables such as age, professional experience, organization’s type, working time, average working hours, working’s way and working order, since the values were 0-0.39. The strongest statistical correlation with general satisfaction and internal satisfaction level was the average working hours and the weakest statistical correlation was the working’s way. The strongest statistical correlation with external satisfaction level was found to be age, while the weakest statistically correlation was found to be working’s way. The correlation analysis between job satisfaction and demographic characteristics is shown in Table 6.

Table 6. The correlation analysis between job satisfaction and demographic features.

Parameter	Age	Working hours	Professional experience	Way of working	Working Time(year)
General satisfaction	0.199	0.269	0.143	-0.202	0.158
External satisfaction	0.224	0.146	0.174	-0.159	0.201
Wages	-	0.216	0.226	-	-
University policies and practices	0.175	-	-	-	-
Business policies and practices	-	0.229	-	-0.181	
Relationship with co-workers	-	0.173	-	-	-
Working conditions	-	-	-	-0.155	0.267
Internal satisfaction	0.173	0.319	-	-0.2	-
Task performed	0.151	-	0.151		
Achievement	-	0.234	-	-	-
Creativity	-	0.313	-	-0.255	0.138
Independence	-	0.192	-		-
Moral Values	-	0.21	-	-0.156	-
Responsibility	-	0.211	-	-	-
Social service	-	0.27	-	-	-
Benefiting from talents	-	0.274	-	-0.16	-
Variety	-	0.177	-		-
Achievement	-	-	-	-0.152	-

(0.00) - (0.20)= Very weak relationship, (0.21) - (0.40)= Weak relationship, (0.41) - (0.59)= Medium relationship, (0.60) - (0.79)= High relationship, (0.80) - (1.00)= Very high relationship

3.2. Findings on productivity of architects

When the findings of the study are examined, it is seen that the architects working in the office are satisfied with productivity. The overall productivity value was found to be 3,43 out of 5. This value was determined as “agree”. The economic and organizational-managerial factor values that make up the overall productivity value are 3.57 and 3.47 out of 5. These values are equivalent to the statement “agree”. Psycho-social factors were determined as “neutral”. The average distribution of productivity levels is shown in Figure 4.

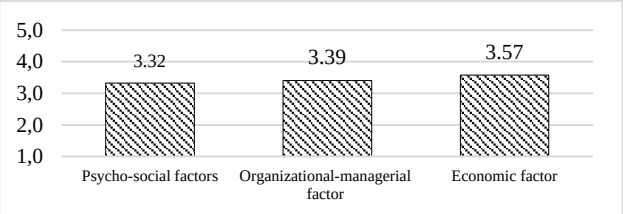

Figure 4. The average distribution of productivity

Frequency and percentage distributions of productivity levels are examined in Table 7.

When the productivity sub-factors of the architects working in the office are examined; some values were found to be higher than the average values. These values are; wages, management sensitivity, equipment and tools, working hours, satisfaction with work, fair wages, responsibility, management-employee relationship and status were determined as “agree.

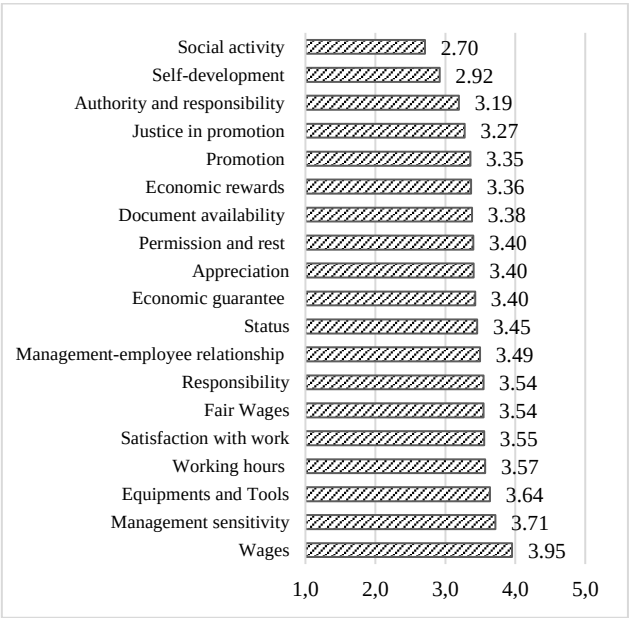

Figure 5. The average distribution of productivity sub-factors

When the productivity sub-factors of the architects working in the office are examined, some values were found to be lower than the average values. Among these values; social

activity, self-development, authority and responsibility, fair promotions, promotion, economic rewards and document availability values were determined as “neutral”. Permission and rest, appreciation and economic guarantee were determined as “agree”. Average values of productivity are shown in Figure 5.

Table 7. Frequency and percentage distributions of productivity

Parameter		Measures						
		1	**2**	**3**	**4**	**5**	**Missing**	**Total**
Wage	Freq.	2	4	11	169	16	1	203
	%	1	2	5.4	83.3	7.9	0.5	100%
Fair wage	Freq.	2	12	80	90	18	1	203
	%	1	5.9	39.4	44.3	8.9	0.5	100%
Economic rewards	Freq.	1	51	37	99	14	1	203
	%	0.5	25.1	18.2	48.8	6.9	0.5	100%
Economic guarantee	Freq.	2	35	51	103	11	1	203
	%	1	17.2	25.1	50.7	5.4	0.5	100%
Status	Freq.	1	33	53	103	12	1	203
	%	0,5	16.3	26.1	50.7	5.9	0.5	100%
Appreciation	Freq.	2	32	59	100	9	1	203
	%	1	15.8	29.1	49.3	4.4	0.5	100%
Relationships with management	Freq.	1	32	51	102	16	1	203
	%	0,5	15.8	25.1	50.2	7.9	0.5	100%
Satisfaction with work	Freq.	1	33	36	117	15	1	203
	%	0.5	16.3	17.7	57.6	7.4	0.5	100%
Social activity	Freq.	2	108	49	33	10	1	203
	%	1	53.2	24.1	16.3	4.9	0.5	100%
Authority	Freq.	1	56	56	79	9	1	203
	%	0.5	27.6	27.6	38.9	4.4	0,5	100%
Document availability	Freq.	1	41	49	100	10	2	203
	%	0.5	20.2	24.1	49.3	4.9	1	100%
Responsibility	Freq.	1	27	50	109	15	1	203
	%	0.5	13.3	24.6	53.7	7.4	0.5	100%
Promotion	Freq.	3	42	46	102	9	1	203
	%	1.5	20.7	22.7	50.2	4.4	0.5	100%
Fair promotion	Freq.	2	41	68	81	10	1	203
	%	1	20.2	33.5	39.9	4.9	0.5	100%
Self development	Freq.	2	88	45	58	9	1	203
	%	1	43.3	22.2	28.6	4.4	0.5	100%
Working Hours	Freq.	2	31	34	120	15	1	203
	%	1	15.3	16.7	59.1	7.4	0.5	100%
Permission status	Freq.	2	43	43	99	14	2	203
	%	1	21.2	21.2	48.8	6.8	1	100%
Equipments and tools	Freq.	1	20	47	117	17	1	203
	%	0.5	9.9	23.2	57.6	8.4	0.5	100%
Management sensivity	Freq.	0	19	34	133	15	2	203
	%	0	9.4	16.7	65.5	7.4	1	100%

A statistically significant and weak relationship was found between productivity levels and sub-factors and demographic variables such as professional experience, type of organization, working time (year), average working hours, working’s way and working order, since the values were 0-0.39. The strongest statistical correlation with economic factors was found to be average working hours and the weakest statistical correlation was found to be working way. The strongest statistical correlation with organizational-managerial factors was found to be average working hours while the weakest statistical correlation was found to be working time in the organization. The correlation analysis between productivity and demographic features in Table 8 is shown.

Table 8. The correlation analysis between productivity and demographic features

Parameter	Av. working hours	Way of working	Type of Organization	Working order	Working Time
Economic Factors	0.233	-0.161	0.144	0.167	
Economic Rewards	0.263	-0.208	0.163	0.213	
Promotion Justices	-	-	0.216	-	-
Document availability	-	-	-	-	-
Appreciation	-	-	-0.139	-	-
Equipment and Tools	0.197	-0.181		0.182	-0.16
Management-employee relationship	0.184	-		-	-
Responsibility	-	-	-		-0.209
Self-development	-		-		-0.2
Social activity		0.18			
Working Time				0.179	

(0.00) - (0.20)= Very weak relationship, (0.21) - (0.40)= Weak relationship, (0.41) - (0.59)= Medium relationship, (0.60) - (0.79)= High relationship, (0.80) - (1.00)= Very high relationship

3.3. Correlation between job satisfaction and productivity

The internal satisfaction level has moderate correlation with economic, psycho-social and organizational-managerial factors. External satisfaction level with economic, psycho-social and organizational-managerial are weakly correlated. General satisfaction level has moderate correlation with economic, psycho-social and organizational-managerial factors. The correlation analysis between job satisfaction and productivity in Table 9 is shown.

4. Conclusion

In this study, we discussed the various individual and organizational factors that influence architects' job satisfaction and productivity. The findings of this research open up new perspectives and pose further questions for future exploration. It has been determined that architects' job satisfaction is influenced by specific individual and organizational factors. However, it is expected that organizational structures and personal desires will evolve over time. Consequently, the variables affecting architects' job satisfaction may also undergo changes.

The advent of the pandemic has popularized the concept of remote working, and technological advancements have introduced new opportunities, fundamentally altering the working conditions for architects, both in the office and in the field. The impact of these changes on architects' job satisfaction and productivity, considering the evolution of location, time, and working environments, will be an important subject for future studies.

Table 9. The correlation analysis between job satisfaction and productivity levels

Parameter	Internal Job Satisfaction	External Job Satisfaction	General Job Satisfaction
Economic factor	0.443	0.395	0.462
Fair Wages	0.337	0.322	0.322
Economic rewards	0.389	0.358	0.411
Economic guarantee	0.338	0.323	0.363
Psycho-social factors	0.472	0.391	0.459
Status	0.38	0.316	0.358
Appreciation	0.365	0.265	0.34
Management-employee relationship	0.335	0.285	0.339
Responsibility	0.403	0.247	0.356
Satisfaction with work	0.334	0.299	0.343
Working hours	0.406	0.24	0.363
Organizational-managerial factor	0.542	0.365	0.50
Authority	0.354	0.189	0.362
Document availability	0.326	0.222	0.305
Promotion	0.27	0.189	0.251
Fair promotion	0.305	-	0.229
Management sensitivity	0.421	0.233	0.385
Permission and rest	0.203	0.185	0.204
Equipments and Tools	0.414	0.299	0.396

(0.00) - (0.20)= Very weak relationship, (0.21) - (0.40)= Weak relationship, (0.41) - (0.59)= Medium relationship, (0.60) - (0.79)= High relationship, (0.80) - (1.00)= Very high relationship

Moreover, the integration of emerging technologies such as virtual reality, AI-driven design tools, and sustainable building technologies presents both challenges and opportunities for architects. These technologies

can enhance creativity, efficiency, and the ability to work on more complex projects. However, they also require architects to continuously learn and adapt, which can influence job satisfaction levels. Understanding how these technological shifts affect architects' work-life balance, career progression, and overall job satisfaction will provide valuable insights into adapting organizational practices and individual strategies for a rapidly evolving profession.

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This study requires ethics committee permission or any special permission.

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The authors of the paper declare that they comply with the scientific, ethical and quotation rules of SAUJS in all processes of the paper and that they do not make any falsification on the data collected. In addition, they declare that Sakarya University Journal of Science and its editorial board have no responsibility for any ethical violations that may be encountered, and that this study has not been evaluated in any academic publication environment other than Sakarya University Journal of Science.

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