# EFFECTS OF WORKPLACE DESIGN ON EMPLOYEE MOTIVATION AND PERFORMANCE

*Dr. Asiya Nasreen
**Mr Samee Nagi

***Abstract***

*An employee's level of motivation, satisfaction, happiness, sense of contentment, and work-related performance are affected by their workplace environment and the way it is designed. These factors often act as invisible stimuli and evoke an array of reactions that form an individual's mood and conduct at their place of work.*

*The explored the effects of workplace design on employees' level of motivation and subsequently their performance on the job across the IT and Allied Industries of the Indian private sector across Delhi-NCR. The findings suggest that workplace design has considerable effects on the motivation and performance of employees and to some extent their health as well. Employee satisfaction with the design elements had been found to be positively correlated with the levels of motivation among employees and their subsequent performance on the job.*

**Keywords**: Workplace Design, Interior Design, Human Resources, Motivation, Performance, Morale, Productivity, Ergonomics

## INTRODUCTION

In an increasingly competitive world, employers cannot afford to waste the potential of their employees. Inarguably, various elements influence employees' behaviour at work. These factors often act as invisible stimuli which obliviously evoke an array of responses that form an individual's mood and conduct. An employee's level of motivation, satisfaction, happiness, sense of belonging, and ultimately their performance gets hugely affected by their workplace environment.

Workplace design refers to the way a workplace is designed and organized to optimize worker performance and safety, with consideration of their capabilities and restraints. Existing studies and literature endorse that workplace design and ergonomics play an important role in the motivation levels and performance of employees. As per the American Psychological Association, employees with high motivation are engaged, motivated, and efficient. They voluntarily work for more hours and are more productive on the job while employees with low motivation are less engaged and experience depression and heart disease. Additionally, performance, being a measure of an employee's performance to produce the required results, significantly decides how much revenue a business may breed. The quality of the workplace environment has a major effect on the level of employees' motivation and subsequent performance.

A lot of time and energy is wasted by workers in managing the poorly designed workspace, leading to the wastage of time and energy required for actual work (Vischer, 2008). In addition, there can be negative impacts like absenteeism due to illnesses such as respiratory infections, eye strain, and back, and neck pains, and the

* Assistant Professor, Department of Social Work, Jamia Millia Islamia University, New Delhi 110025.
**Student, M. A. Human Resource Management, Department of Social Work,
Jamia Millia Islamia University, New Delhi

stress of functioning in an unsupportive or adverse physical environment have behavioural effects. These account for low or reduced motivation, employee turnover, and inadequate work performance as a result of performing tasks slower and making more errors – all factors that affect organizational performance (Vischer, 2008; Haynes, 2007; Damian, 2004; Heerwagen et al., 2004; Sundstrom et al., 1994).

The positive effects of a well-structured workspace are supported by the ample number of studies where ambient conditions such as lighting, temperature, sound levels, furniture, and aesthetics affect both employee motivation and performance (McCoy and Evans, 2005; Vischer and Fischer, 2005; Damian, 2004; Brill and Weideman, 2001; Fisk, 2000; Monk, 1997, Larsen et al., 1998; Veitch and Gifford, 1996). Lighting, ventilation, and access to natural light and sound are significantly related to workers' satisfaction and productivity (Humphreys, 2005; Veitch et al., 2004; Becker, 1981). Natural elements, such as views of nature and indoor plants, have a positive influence on mental fatigue and restorative value (Kaplan, 1995; Kaplan et al., 1988; Haber, 1977).

Gutnick (2012) has also purported that the improvement of the working environment reduces the incidences related to workers' absenteeism and improves their performance. The indoor environment has the biggest effect on productivity job stress and job dissatisfaction. According to Clements-Croome and Kaluarachchi (2010), a compensation package is an important source of motivation but does not continue to provide a fillip to employees' performance in the longer run. On the contrary, a workplace environment is a motivator for employees for producing better or worse results. Taken together, physical and behavioural components constitute the office environment and can be further divided into independent variables. The physical environment, design, and layout of an organization can have an effect on employee behaviour in the workplace. With this backdrop, the present study is an attempt to better understand the effect and relationship of workplace interior design on and with employees' levels of motivation and their performance on the job in the Indian context.

## REVIEW OF LITERATURE

Olalere (2014) noted that interior design and environmental management processes positively affect employees' output and overall enterprise performance. In a similar report, EI-Zeiny (2013) suggested that the office environment has a significant influence on enhancing employees' performance. Gensler (2006) followed up this research in a survey of 2,000 office employees in the USA which showed that 90 percent of the respondents believed that better interior design and layout result in better general employee performance.

Research by the American Society of Interior Designers (ASID, 1999) showed that the physical environment is one of the top three factors that affect employees' decisions to accept or leave jobs and it was tied for second with benefits after compensation. In a follow-up study, ASID (2002) employees were asked what they want in their ideal workplace. Thirty percent of the employees mentioned access as pivotal in the office environment. They relate to access to the proximity of things they need, including access to spaces that accommodate the tasks they need to accomplish, access to office equipment, and to people. In the same study, employees identified privacy as important to their ability to work productively. Mendis (2016), while identifying the relationship between workplace design and job performance in Sri Lanka, indicated that there is a strong positive relationship between workplace design and job performance of operational level employees. Saha (2016) analyzed the impact of workplace design on employee productivity in the city of Pune and it was found that the productivity of people in their workplace can be greatly influenced by the design and physical workspace they occupy daily. Hameed & Amjad (2009) suggested that office design significantly affects employees' work output, and the workplace environment motivates employees which ultimately leads to sustainable employee performance.

Occupational health not only ensures the health of workers but also contributes positively to the quality of products, work motivation, work performance, and thereby the overall quality of life of individuals and society (WHO, 1994). Health at work and a healthy work environment are among the most valuable assets of individuals, communities, and countries (Amponsah Tawiah & Dartey Baah, 2011).

Blackand & Lynch (2011) in 'Human-capital Investments and Productivity' mention that to maximize productivity and satisfaction among employees, the physical layout of an organization should be designed around employee needs. They suggested innovative workplaces to encourage the sharing of information and networking regardless of job boundaries by allowing communication freely across departmental groups. The modern work physical environment is characterized by technology; sophisticated infrastructure and is automated. The goals of high employee productivity can be achieved to an extent by a conducive physical environment that facilitates interaction as well as maintains privacy.

Chandrasekar, K. (2011) reported that the brightness of office light affects employee behaviour like alertness, concentration, and task performance. Experience of working and performance can be managed by adjusting the type and quality of light. Al-Anzi, N. M. (2009) suggested that poorly designed furniture set out in an inefficient spatial arrangement and noisy environment will most likely increase employee stress and fatigue levels, and lead to back, neck, and eye strain. These negative outcomes consequently lead to high rates of employee incapacitation, absenteeism, low morale, and low interest. The gross result of these happenings is impairment of employee performance and, ultimately, how long they stay on the job.

## RATIONALE

Literature concerning Workplace Design has highlighted the many benefits and advantages of leveraging environmental stimuli to evoke desired employee behaviour. However, limited studies in the Indian context create scope to understand and analyze the effect and relationship of workplace interior design on and with the employees' motivation and their performance on the job.

## RESEARCH METHODOLOGY

**Research design:** A descriptive research design has been used using a quantitative approach with the following

**objectives**:

- To understand the relationship between an individual's level of motivation and their work environment
- To understand the impact of workplace interior design on an employee's overall performance
- To present recommendations in the Indian context in the field of Workplace Design

**Hypothesis:** This study speculates that the interior design of the workplace of an organization has significant effects on the level of motivation and the overall job performance of employees. Following are the hypothesis:

Hypothesis 1: The quality of workplace design is positively correlated with the motivation levels of employees.

Hypothesis 2: The quality of workplace design is positively correlated with the job performance of employees.

**Universe and sample:** The study focused on the Indian adult population over the age of 18 years including males and females employed across the IT and Allied Industries of the Indian private sector across Delhi-NCR. Employees of IT and Allied Industries were chosen, in particular, due to the demands of their work which generally require them to spend extensive hours sitting on a chair in front of computer screens, across most

profiles, with little to no physical activity which may have adverse effects on their mental and physical well-being. The sample size of 55 working professionals employed at the associate/executive-level and were selected using the Purposive Sampling technique of Non-probability Sampling.

**Tools of data collection:** Data collection was done by using a self-administrated structured questionnaire that had closed-ended as well as open-ended questions, was hand-delivered in person, and also sent online to the respondents who consented to participate in the study. A five-point Likert Scale was used to measure most of the variables. Before data collection, pre-testing of the research instrument was conducted to ascertain its validity, reliability, and overall relevance.

**Analysis of data:** After the completion of the test, the total scores were calculated for each questionnaire. Subsequently, the data so collected was analyzed quantitatively using IBM's Statistical Package for the Social Sciences (SPSS) and Microsoft Office Excel and the final results are presented using tables and charts for interpretation.

## RESULTS

**Demographics:** A total of 55 respondents were covered who were employed at organizations belonging to the IT and Allied Industries of the Indian Private Sector across Delhi-NCR. Gender-wise, 28 were Males and 27 were Females, and age-wise more than 96% of them were less than 50 years old.

**Workplace design elements:** Several Design Elements were identified which may affect the levels of motivation and performance of employees. The level of satisfaction of the respondents with each design element has been analyzed individually, and correlations among design elements with their corresponding independent variables have also been calculated and interpreted.

### A. DESIGN ELEMENTS WITH EFFECTS ON MOTIVATION

**Modern vs conventional workplace design:** The participants of the study were asked about their preference for modern workplace designs with lounges, standing workstations, etc., and flexibility to sit anywhere in the office over a conventional workplace design with a designated desk-chair setup. The majority of the respondents preferred the former over the latter with about 78% of them in agreement. The correlation between the age of the respondents with their preference for a modern workplace design was done using Pearson's correlation (2-tailed) and it was found to be significant at the 0.10 level. The two variables 'Preference for Modern Workplace Design' and 'Age' were found to be negatively correlated at -0.2574. A negative correlation signifies that the older group of the sample would be more likely inclined towards a conventional workplace design while the younger population preferred a modern workplace design.

**Communication & socialization:** The majority of the respondents were satisfied with their workplaces offering them ease of communication and socialization with colleagues. 15% of the respondents were neutral while 14% were not satisfied, indicating hindrances caused by the layout to communicate efficiently across departments. This was especially the case if the office building had several floors making social interaction limited to respective floors and negligible with colleagues stationed on other floors.

**Workplace restroom design:** The participants were asked if a high standard of hygiene and privacy in the restroom areas were maintained and whether the restrooms were equipped with all the essential accessories and product supplies. While the majority of the responses were satisfactory (refer to Chart 3), interesting feedback to note was regarding the silence in the restroom area which resulted in discomfort in using the restrooms and one being subject to hearing unwanted noises from other people using the facility. Deploying 'restroom music'

to mask natural noises and to make a user feel less conscious while using the restroom was suggested.

**Cleanliness, waste-disposal, and Green Design:** About 93% of the participants were satisfied with the standard of cleanliness, hygiene, and eco-friendly practices maintained at their workplaces and also agreed with the waste management practices at their offices. However, lack of use of natural light during day hours, use of pet water bottles in place of water-cooler machines, and excessive use of paper napkins in restrooms instead of hand-dryer machines were some of the issues highlighted in the feedback.

**Safety & Security:** It is the responsibility of an organization to protect an employee from work-related illnesses and injuries and to make the workplace facility secure from intruders. Every respondent felt safe at their place of work which is a positive indicator for the IT and Allied Industries across Delhi-NCR.

**Breaks, recreation & rejuvenation:** Breaks, recreation, and rejuvenation is the design element that saw the most amount of dissatisfaction among respondents, as respondents complained about the lack of indoor games, leisure rooms, bean bag areas, nap rooms, etc. to be able to take a break during the long hours spent at the office and rejuvenate for the remaining day's work.

## B. DESIGN ELEMENTS WITH EFFECTS ON PERFORMANCE

**Noise or silence level at the workplace:** Respondents were asked if their workplace was uncomfortably noisy or silent to have any kind of impact on their level of motivation and overall performance. The majority of them felt that the noise or silence level at their place of work was comfortable enough for performing daily tasks, while a few respondents complained that their workplaces were sometimes either too noisy or too silent to make sitting in the office a little uncomfortable.

**Lighting design at the workplace:** The majority of the participants were satisfied and only 4% were neutral i.e., sometimes satisfied and sometimes dissatisfied and none of them was dissatisfied or had any complaints about the lighting of their offices and felt that there was an optimum source of light for the requirement of their work.

**Room temperature & air quality:** As with Lighting Design, the majority of the participants were satisfied with the daily usual room temperature and air quality maintained at their places of work. About 52% and 36% of the participants agreed and completely agreed respectively. Those who were neutral or disagreed (close to a total of about 12%) complained that sometimes the temperature is set at a very low temperature which makes the office facility extremely cold and uncomfortable for work. The lack of deployment of Air Purifiers to combat the Delhi-NCR air pollution was another complaint received in the feedback.

**Continuous sitting & working style:** Most dispersions in responses were noted with floods of complaints and interesting remarks accompanied by them. There was close to a 50-50% dispersion in satisfaction and dissatisfaction. Many respondents complained that long hours of sitting on their designated desk chairs in front of computer screens has led to frequent backaches, cervical spondylitis, permanent back injuries, neck pain as well as eyestrains, and even an increase in optical power due to reduced physical activity. Several participants also claimed to develop health issues like cervical spondylitis and complained about a lack of inclusivity due to an absence of any special provisions like lounges, standing workstations, bean bags, ergonomically designed chairs, etc. Yoga and Gym facilities at the workplace were common suggestions received in the survey.

**Spatial layout:** Spatial arrangement and layout were another design element for which there was no dissatisfaction among the respondents. 42% and 44% of respondents completely agreed and agreed respectively while 14% of individuals were neutral i.e., they were neither satisfied nor dissatisfied with the

spatial layout at their workplace facilities.

**Furniture & ergonomics:** The process by which products are designed for use by multiple users is ergonomics. It facilitates posture and comfort to the employees in an office scenario. 7% of the respondents disagreed with the furniture design and ergonomics at their respective places of work while about 9% were neutral i.e., neither satisfied nor dissatisfied. The 'agree' and 'completely agree' categories were equally dispersed with about 42% of responses each in favour.

**Technical equipment & office supplies:** Nearly 87% are satisfied with the technical equipment and office supplies provided to them at their places of work. Only about 5% of individuals disagree and do not feel that the equipment and supplies are of advanced technologies and in good condition which acts as a hindrance in their ability to perform efficiently at work. About 7% of participants took a neutral stand.

**Control & personalization:** This design element saw a near-equal dispersion between respondents' satisfaction and dissatisfaction with the degree of control they had over their immediate work environment like the type of workstation and its location in the office, temperature, lighting, privacy, etc. which they were or were not able to regulate or personalize as per their needs and desires. About 25% and 33% of respondents 'Completely Agreed' and 'Agreed' respectively while 20% individuals were 'Neutral' and 22% of the participants 'Disagreed'

The respondents' level of satisfaction with the Design of their Workplaces for Control and Personalization was found to be positively correlated with the respondents' overall level of motivation at 0.5236.

A. **Correlation between individual workplace design elements and motivation:** The respondents' level of satisfaction with different elements of the Design of their Workplaces was found to be positively correlated with the overall level of motivation signifying an increase in the value of the dependent variables leads to an increase in the value of an independent variable that is Motivation and vice-versa.

Table 1
Correlation between individual Workplace Design Elements and Employee Motivation

| Design Element | Pearson's Correlation with Motivation | Sig. (2-tailed) |
|---|---|---|
| Communication & Socialization | 0.29* | 0.03 |
| Workplace Restroom Design | 0.44* | 0.00 |
| Cleanliness and Waste-disposal | 0.45* | 0.00 |
| Green Design | 0.33* | 0.01 |
| Safety & Security | 0.48* | 0.00 |
| Breaks, Recreation & Rejuvenation | 0.63* | 0.00 |

*Correlation is significant at a 0.05 level (2-tailed)

**B. Correlation between individual workplace design elements and employee performance:** The respondents' level of satisfaction with the elements of the Design of their Workplaces was found to be positively correlated with the respondents' overall level of motivation signifying that studied variables affect Performance and vice-versa.

Table 2
Correlation between individual Workplace Design Elements and Performance

| Design Element | Pearson's Correlation with Performance | Sig. (2-tailed) |
|---|---|---|
| Noise or Silence Level | 0.53* | 0.00 |
| Lighting Design | 0.40* | 0.00 |
| Room Temperature & Air Quality | 0.38* | 0.00 |
| Continuous Sitting & Working Style | 0.34* | 0.01 |
| Spatial Layout | 0.51* | 0.00 |
| Furniture & Ergonomics | 0.42* | 0.00 |
| Technical Equipment & Office Supplies | 0.35* | 0.01 |
| Control & Personalization | 0.52* | 0.00 |

*Correlation is significant at a 0.05 level (2-tailed)

**C. Overall relationship between workplace design, motivation & performance:** The overall relationship between workplace design and motivation, between workplace design and performance as well as between motivation and performance of employees in their place of work was found to be positively correlated with the respondents' overall level of motivation at 0.6509 and it was found to be significant at the 0.05 and 0.01 levels. The correlation between the overall motivation levels of employees at work with their eventual efficiency of performance on the job was also analyzed which was also found to be significant at the 0.05 level. The two variables Motivation and Performance were found to be positively correlated at 0.2841.

Table 3
**Correlation between Workplace Design & Motivation**

| | Workplace Design | Motivation |
|---|---|---|
| Pearson's Correlation | 1 | 0.65* |
| Sig. (2-tailed) | | 0.00 |
| N | 55 | 55 |

**Correlation between Workplace Design & Performance**

| | Workplace Design | Performance |
|---|---|---|
| Pearson's Correlation | 1 | 0.67* |
| Sig. (2-tailed) | | 0.00 |
| N | 55 | 55 |

**Correlation between Motivation & Performance**

| | Motivation | Performance |
|---|---|---|
| Pearson's Correlation | 1 | 0.28* |
| Sig. (2-tailed) | | 0.36 |
| N | 55 | 55 |

*Correlation is significant at a 0.05 level in each case (2-tailed)

The results indicate a direct and significant relationship between the quality of a place of work and the motivation levels of employees as well as their performance at work. Hence, hypotheses 1 & 2, which purported positive correlations between workplace design & motivation and between workplace design & performance, are proven. Additionally, the motivation levels of employees and their subsequent performance on the job are also positively correlated.

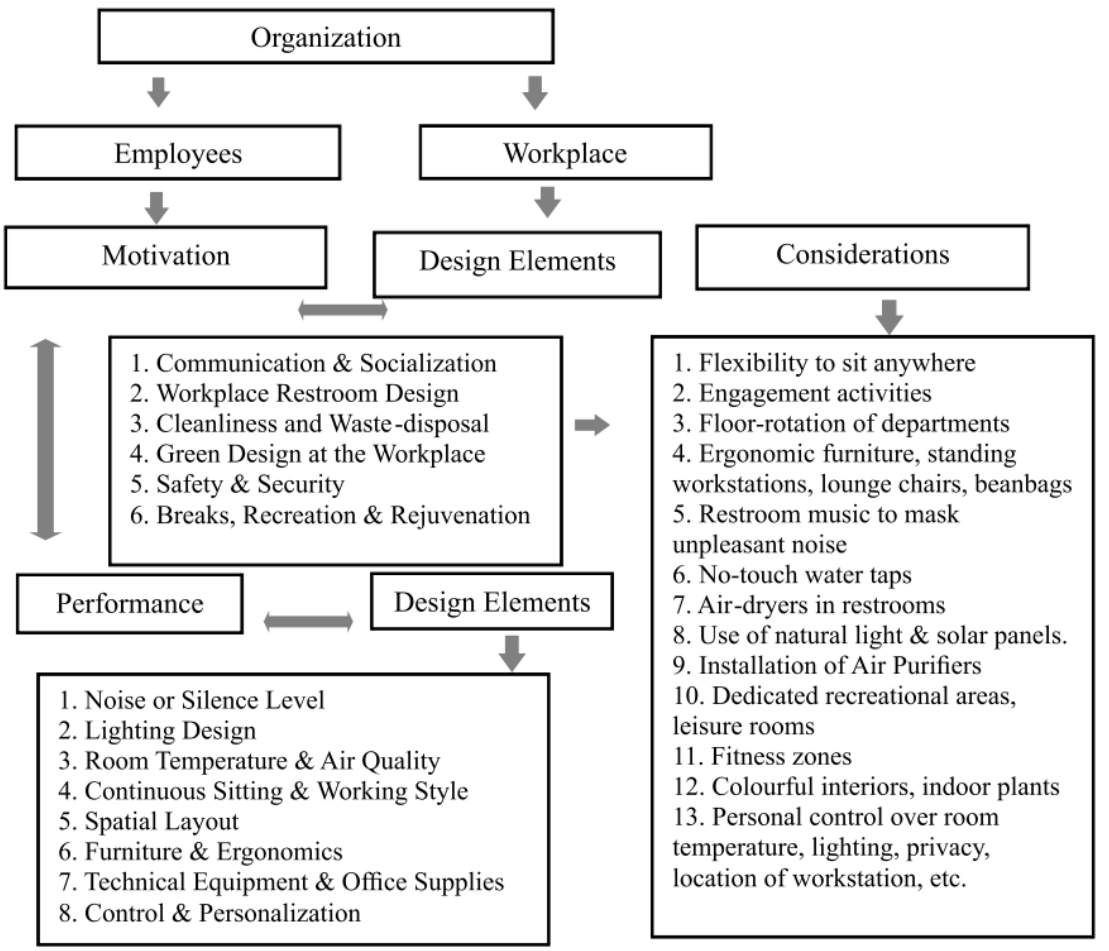
## DISCUSSION

The impact of workplace setting has been noted in many studies as being one of the fundamental components identified with endowing employees in an office space to perform closest to their optimal potential. Many benefits are identified by ergonomically designed workplaces like lower absenteeism, turnover, and higher engagement (Al-Anzi, 2009; Gutnick (2012; Washington State Department of Labour and Industries, 2002), better occupational health (WHO, 1994; Amponsah Tawiah & Dartey Baah, 2011). The quality of the employee's workplace environment has a major effect on the level of employees' motivation and subsequent performance (Olalere 2014; EI-Zeiny, 2013). The present study focussing on Indian IT and Allied Industries of the Indian private sector across Delhi-NCR reiterates that there is a strong correlation between workplace design and motivation and their performance on the job among employees. Regardless of gender or age, the participants vehemently supported well-designed workplaces due to the nature and demand of their work that locks them in extensive hours sitting on a chair in front of computer screens, across most profiles. With little to no physical activity, there can be adverse effects on their mental and physical well-being. All considered workplace variables were found to be positively correlated with the levels of motivation among employees and their overall performance. Additionally, employees' motivation levels and their job performance were also found to be positively correlated.

## RECOMMENDATIONS

During the survey, it came to light that many employees suffered from physical ailments and injuries such as backaches, cervical spondylosis, slipped disc, eye strains, decreasing eyesight, etc which were worsened by long hours of sitting. An ergonomically designed workplace can minimize the ill effects on health which negatively affect their levels of motivation during work hours and their consequent efficiency in performing well on the job. In this regard, the following intervention model is suggested as depicted in **Diagram 1.**

**Intervention Model**




## CONCLUSION

Workplace Design has many benefits and advantages of leveraging environmental stimuli to evoke desired employee behaviour. The hypothesis considered for the study established that workplace design has considerable effects on the motivation and performance of employees and in some cases their health as well. Employees' motivation levels and their job performance were found to be positively correlated i.e., increased motivation among employees during work hours will likely lead to more efficient job performance. Moreover, employee satisfaction with the design elements identified was also found to be positively correlated with the levels of motivation among employees and their subsequent performance on the job. Hence, a well-designed workplace facility will likely lead to higher levels of motivation and consequently greater efficiency in performing on the job.

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