

PRODUCTIVITY LINK TO THE INTERNAL ENVIRONMENT: A CASE STUDY OF BANKS IN CHHATTISGARH

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ABSTRACT

The paper discusses the quality of the employee's workplace environment that most impacts on the level of employee's productivity. The main objective of this paper is to find out the relationship between office design and productivity. Since people are the most important resource and greatest expense of any organization, the long-term cost benefits of a properly designed, user-friendly work Environment should be factored into any initial cost considerations. Many enterprises limit their Productivity enhancement of employees to the acquisition of skills. However, most of productivity problems reside in the work environment of organizations. The work environment has effect on the performance of employees. The type of work environment in which employees operate determines the way in which such enterprises prosper. The objective of the study is to analyze the impact of work environment on employee's productivity

KEYWORDS: - Productivity, Work Environment, Office Design, Job satisfaction.

OBJECTIVES OF THE STUDY

1. To determine the impact of work environment on employees' productivity.
2. To analyze the impact of office design on employees' performance

3. To assess the effect of employees' health on their work performance
4. To understand the relationship between the employees and their physical work environment.

INTRODUCTION

Office employees spend a lot of their time inside a building, where the physical environments influence their well-being and directly control their work performance and productivity. In the workplace, it is often assumed that employees who are more satisfied with the physical environment are more likely to produce better work outcomes. Temperature, air quality, lighting and noise conditions in the office affect the work concentration and productivity. Several studies have always demonstrated that uniqueness of the physical office environment can have a large effect on behavior, perceptions and productivity of employees.

LITERATURE REVIEW

EFFECTS OF PHYSICAL WORKPLACE DESIGN

Work has been done to recognize the relationship between work environment and job satisfaction all around the world in different contexts over the years. The study is gaining more and more

importance with the passage of time because of its nature and impact on the society. Myriam B.C. Aries *et al.* (2010) states that the physical arrangement of the office environment influences the level and type of social interaction between employees [4]. According to Vischer & Jacqueline (1989), the good of physical office arrangements important to [9] Helps workers perform their tasks more quickly, easily and efficiently. The planned layout also allows more space to maximum use and economy. Supervision and monitoring of workers becomes easier. Communication system becomes easier and faster. It provides comfort as well affect the behavior and employee's works.

EFFECTS OF INDOOR TEMPERATURE ON PERFORMANCE

Several studies conducted by Lorsch and Abdou (1994), "shows that when the air-conditioning system was introduced, employees feel that their work space becomes more comfortable and the productivity tends to increase by 5-15 percent because they can concentrate on their work [3]. This statement explains that when an employee feels comfortable with the workplace environment, things that can distract their work can be reduced and they can perform better.

INFLUENCE OF COLOUR IN OFFICE ENVIRONMENT

Garris and Monroe (2005) state that colour influences not only mood but also wellness and productivity [2]. As mentioned by Syahrul Nizam & Emma Marinie (2010), colours also affect psychological aspects of the building's occupants. Some colours provide calmness, some provide comfort, some are stimulating and many others have an impact in different ways [8]. This means that colour will affect the mood of the occupant of

the space. So, appropriate colour should be chosen to ensure the mood of the employees is good in order to encourage productivity. Productivity is rarely correlated with colour. However, the colour scheme does play an important role in the working environment. According to Farshchi and Fisher (1997), the character of space affects human emotions and behaviour. In space configuration or arrangement, colour also plays an important role in influencing either large or small areas [1]. For instance, a long, narrow room can be made to seem more normal if the end walls are painted in warm, deep and intense colours, while the side walls are painted in lighter, less saturated colours.

NOISE AS A PSYCHOSOCIAL STRESS

Sound or noise problem in an office is something that could not be avoided. Studies have shown that when sound is turned off, errors in work are reduced and productivity increases. Sundstrom, Town, Rice, Osborn, and Brill (1994) identified noise as an ambient stressor relating to job satisfaction in the work environment [7]. Smith (1989) reviewed the effects of noise on performance. Despite an extensive review, Smith concluded that noise effects are still unclear, and that beyond intensity issues, researchers need to analyze the questions of what type of noise at what intensity affects which type of task performance [6].

INFLUENCE OF INTERIOR PLANTS ON EMPLOYEES

Interior plants are common in many homes, work places, and commercial settings. Sethi, A.S *et al.*, (1987) agreed that although the office environment has changed over time, interior plants continue to be used in work spaces [5].

METHODOLOGY

Primary data was collected through a structured questionnaire. Observation was also used to collect information about the office design. The Structured Questionnaire was prepared for collect the data. Data was gathered from the various bank officials and employees. Data was collected from the sample of 17 banks (115 employees). A five point Likert Scale was used to measure all the variables. The scale varies from 1 (strongly disagree) to 5 (strongly agree) for most of the

questions. Secondary data was collected from various books, publications and journals.

EMPLOYEE INFORMATION

The gender of this sample size is approximately in the middle of female and male. 68.69% of the attendees are between 20 to 29 years old. 72% of the employees have at least graduate degree and more than 80% of the employees have more than 1 year seniority within the bank.

Table 1

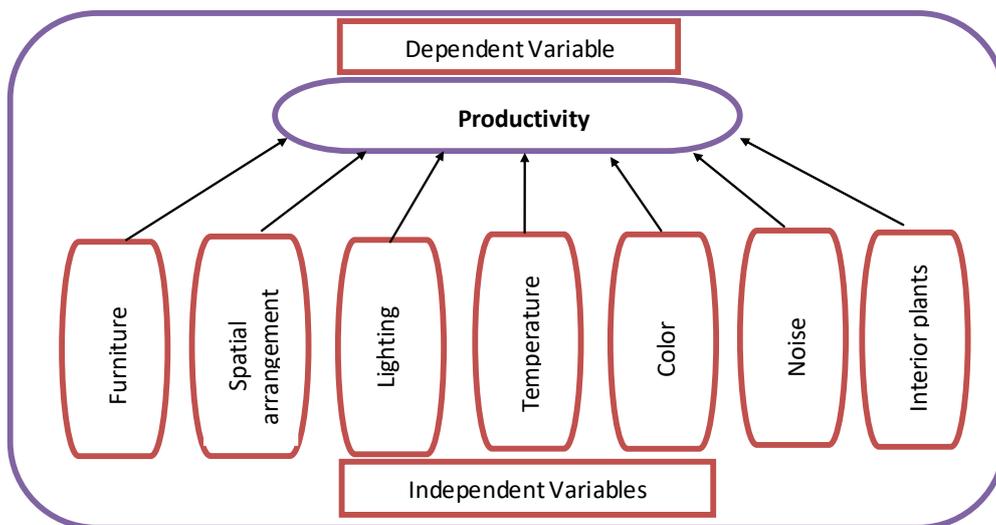
| | Gender | | Age | | | Qualification | | | Seniority | | | Total |
|-------------------|--------|--------|-------|-------|------------|---------------|---------------|----------|--------------|--------------|---------------|-------|
| | Male | Female | 20-29 | 30-39 | 40 & Above | High School | Undergraduate | Graduate | 0 to 1 years | 1 to 2 years | Above 2 years | |
| No of Respondents | 77 | 38 | 79 | 24 | 12 | 8 | 24 | 83 | 22 | 34 | 59 | 115 |
| Percentage (%) | 66.95 | 33.05 | 68.69 | 20.86 | 10.45 | 6.96 | 20.87 | 72.17 | 19.13 | 29.57 | 51.30 | 100 |

THEORETICAL FRAMEWORK

Based on the literature review the connection between office design and productivity can be conceptualized and depicted in Table 2. The connection is clear in such a way that the set of

factors impact on an individual, which in turn conclude the final outcome in terms of increased or decreased productivity of that individual. These factors have different impacts on different employees based on their gender

Table 2 Theoretical framework



RESEARCH FINDINGS

Seven indicators of office design such as furniture, noise, temperature, lighting, spatial arrangement, color and interior plants measured for study. The general reaction for each factor was analyzed and the mean and standard deviation values are shown in the Table 3. Data was analyzed to discover the factor that the fairly high tendency towards falling productivity. Different office design factors such as furniture, noise, lighting, temperature, spatial arrangement, color and interior plants were used to resolve the extent of the loss in productivity.

Table 3. Mean of factors

| Factors | Total number of respondents | Mean (SD) for Factor |
|----------------------|-----------------------------|----------------------|
| Furniture | 115 | 3.14(0.67) |
| Noise | 115 | 3.39(0.75) |
| Spatial arrangements | 115 | 3.44(0.74) |
| Temperature | 115 | 3.46(0.77) |
| Lighting | 115 | 3.28(0.71) |
| Color | 115 | 3.55(0.77) |
| Interior Plants | 115 | 3.66(0.78) |

SD= Standard deviation

The key factor which affects the productivity of employees is furniture in the office. Next to the factor furniture, it is lighting. Then the importance sequence is noise, spatial arrangements, temperature, color and interior plants. Both furniture and lighting is very essential in any office environment. It gives a sense of energy and affects the mood of the employees. Accomplishment of daily tasks in workplaces with bad furniture and dim lights is difficult for employees. Working in dim light leads to eye strain and thus causing headaches and irritability. Due to this discomfort,

productivity is very much affected causing overall decrease in employee's performance. According to the data collected, 33.05 percent respondents were female employees and 66.95 percent were male employees.

The overall response according to the gender and the mean and productivity for male and female employees is detailed in Table 4.

Table 4 Overall Responses According to Gender

| Factors | Mean (SD) for Male employees | Mean (SD) for Female employees |
|-----------------------------|------------------------------|--------------------------------|
| Furniture | 3.56(0.64) | 3.68(0.61) |
| Noise | 3.74(0.46) | 3.31(0.77) |
| Spatial arrangements | 3.45(0.61) | 3.25(0.66) |
| Temperature | 3.82(0.46) | 3.88(0.36) |
| Lighting | 3.32(0.82) | 3.18(0.59) |
| Color | 3.72(0.77) | 3.65(0.83) |
| Interior Plants | 4.12(0.66) | 3.92(0.72) |
| Overall mean | 3.67 | 3.55 |
| Overall productivity | 3.72 | 3.42 |

SD= standard deviation

According to the results in Table 4, male employees are affected by the furniture in their offices (3.56); their productivity is also affected by the furniture they are using or which surrounds their workplaces (3.72). Along with this the results also show that female employees are less affected by the furniture in their work area (3.68) and their performance also remains unaffected with uncomfortable furniture (3.42). If only the performance of both male and female employees is compared then we can see that male employees perform less than female employees due to bad furniture, which they use in their workplaces. While analyzing the means of Noise obtained from the data, it was revealed that male employees were not much affected by

noise (3.74) but due to even a little noise their productivity was affected (3.72). On the other hand, the female respondents' results show that there are many noise distractions in their workplace (3.31) and in their surroundings. But due to this noise productivity of female employees is not affected (3.42). Because female employees are always chatting, therefore, they can work in noisy surroundings. Comparing the productivity of male employees (3.72) and female employees (3.42) with respect to noise, productivity of male employees is more than female employees. One of the most important features in office design is light. Both natural and artificial light is needed in a proper and adequate amount to carry out normal activities of everyday office work. This factor was analyzed in my research. Results revealed that male employees show a low mean (3.32), which means that lighting is not proper in offices and when we see the productivity of male employees against this mean it is high (3.72). So, the conclusion can be made that due of improper lighting in offices male employees have difficulty in completing and concentrating on their work and their productivity (3.72) is affected. In the same way when female employees' results were analyzed, and it transpired that they were affected (3.18) a little more than male employees, but their productivity (3.42) is not affected by lighting around their workplace. On comparing, only the productivity of male employees (3.72) and female employees (3.42) the result shows that lighting affects male employees more while working in offices than female employees. Temperature affects productivity the most. Female respondents' results show that the temperature conditions of their offices are good (3.88) in both summers and winters. Due to the pleasant temperature in summers and winters there is no adverse effect on their productivity (3.42). Similarly, the mean value for male employees is (3.82), which means that temperature is not irregular in their offices. But a little irregularity in temperature affects their productivity (3.72). Another major aspect of the way in which the workplace aids productivity is in supporting work processes through the way that space is arranged. According to the results female employees are more conscious about the arrangement of space in their workplaces (3.25) but due to this their productivity is not affected (3.42), it is satisfactory. In case of male employees, they are far less affected (3.45) by the spatial arrangement than female employees but their productivity (3.72) is affected by this. The overall mean of all the factors show a low mean for female employees (3.55) and a relatively high mean for male employees (3.72). Another major aspect of the way in which the workplace aids productivity is in supporting work processes through the way that space is arranged. According to the results female employees are more conscious about the interior colors in their workplaces (3.65) but due to this their productivity is not affected (3.42), it is satisfactory. In case of male employees, they are far less affected (3.72) by the interior colors than female employees but their productivity (3.72) is affected by this. According to the results female employees are more conscious about the interior plants in their workplaces (3.92) but due to this their productivity is not affected (3.42), it is satisfactory. In case of male employees, they are far less affected (3.72) by the interior plants than female employees but their productivity (3.72) is affected by this means that female employees are more concerned about their workplace surroundings than male employees. Differences are found amongst the responses to different factors in the workplace. Male employees' results show that they are more concerned about the lighting and furniture in

their offices then the spatial arrangement and other factors.

There is a direct relationship between office Design and productivity. This relationship between office design and productivity was determined by using the Pearson’s Correlation in standard statistical software “Statistical Package for Social Sciences” (SPSS). Pearson’s Correlation is a measurement of the strength of a linear or straightline relationship between two variables. The Correlation Coefficients indicate both the direction of the relationship and its magnitude (Table 5).

Table 5 Correlation between Elements of Office Design and Employee Productivity

| Office design elements | Pearson correlation (r) | Significance (2-tailed) |
|------------------------|-------------------------|-------------------------|
| Furniture | .223(*) | .042 |
| Noise | .389(*) | .001 |
| Lighting | .680(**) | .012 |
| Temperature | .527(**) | .003 |
| Spatial arrangements | .407(**) | .000 |
| Color | .378(**) | .000 |
| Interior plants | .428(**) | .000 |

r is Pearson correlation coefficient
***Correlation is significant at the 0.05 level (2-tailed)**
**** Correlation is significant at the 0.01 level (2-tailed).**

The analysis of the results indicate a positive correlation between furniture and productivity (r = 0.223) and is significant at 0.05. This shows that when the furniture of the office is not comfortable and according to the needs of the employees their productivity is affected. There is a positive relationship between Noise and Productivity. The

correlation coefficient (r=0.389) is significant at 0.01.

The positive relationship between lighting and productivity (r=0.680) at 0.01 shows that employees’ productivity highly correlates to the lighting conditions in the offices. The results of temperature reveal its significant correlation with productivity (r=0.527) at p=0.01. Spatial Arrangement is the space factor in office design; when the correlation was calculated in SPSS it gave a positive relation with productivity (r=0.407) where p=0.01. It means that the spatial arrangement has a considerable effect on the employees’ productivity. The positive relation between colors and productivity(r=0.378) at 0.01. The result of interior plants reveals its significance correlation with productivity (r=0.428) at p=0.01.

Table 6. Regression Results of Model

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .798 ^a | .636 | .564 | .66058 |

R= Correlation coefficient

a. Predictors: (Constant), Spatial arrangement, Noise, Furniture, Lighting, Temperature, color, interior plants.

Model Summary

| Model | Sum of squares | df | Mean square | F | Sig. |
|------------|----------------|-----|-------------|--------|-------------------|
| Regression | 29.717 | 6 | 6.224 | 27.907 | .000 ^a |
| Residual | 77.283 | 108 | .248 | | |
| Total | 107.000 | 114 | | | |

Source: Survey

df= degree of freedom , F=regression mean square/residual mean square ,Sig=P-value

- a. Predictors: (Constant), Spatial arrangement, Noise, Furniture, Lighting, Temperature, color, interior plants
- b. Dependent Variable: Productivity

The coefficient of determination R. Square = 0.636. This gives us the ratio of explained variation to total variation. On converting the R. square value to percentage it comes to be approximately 64Percent. From this percentage it is concluded that 64percent of the variability of employees' productivity is accounted for by the variables in this model. The regression co-efficient for the predictor variables; furniture, noise, lighting, temperature, spatial arrangements, color and interior plants are 0.023,0.054, 0.698, -0.021, 0.213,0.022 and 0.0014 respectively. The coefficient values show, the change in productivity with a unit change in a variable value, when all the other variables are held constant. When we analyze the coefficient value for the variable, 'lighting' we can say that there is an increase of 0.739 in the productivity of an employee for every unit increase (betterment) in the lighting conditions of the office, keeping all the other variables constant.

The Regression Equation:

$$\text{Employee Productivity} = -0.645 + 0.023F + 0.054N + 0.698L - 0.021T + 0.213SA + 0.022C + 0.0014IP$$

(Where F=furniture, N=noise, L=lighting, T=temperature, SA=spatial arrangements, C=color and IP=interior plants)

DISCUSSION OF THE FINDINGS

Analysis of the collected data open that office design has a great impact on the employees' productivity. The overall impact of special elements showed that furniture and lighting

affects the productivity of most employees. The overall mean of all the factors show that female employees are more worried about their workplace surroundings, whereas, their male counterparts are less worried with it. The overall response, according to gender, showed differences between the responses for different elements in the workplace. Male respondents' results show that they are more worried about the furniture and lighting in their offices, followed by the spatial arrangement. The female employees more worried with colors and interior plants compare with male employees. There is a direct relationship between office design and productivity. The Relationship between Office design and Productivity was determined by using the Pearson's Correlation in SPSS. A strong correlation exists between elements of office design and productivity of office design. The regression analysis of the data shows that the coefficient of determination R. square = 0.64, so, it can be concluded that 58 percent of the variability in employees' productivity is accounted for by the variables in this model.

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