

To find out the relationship between perceived satisfaction with window view and indoor plants on employees' productivity: preliminary study in Punjab

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Abstract— The fact that people spend about 90% of their time indoors has made the implications of the indoor environment very important to designers and architects. This issue is substantially handled in western countries however in Indian conditions it is significantly neglected. In India, workplace environment and its related issues were not given much importance. Aim of the present study is to find out the relationship between perceived satisfaction with window view and indoor plants on employees' productivity. A total of 600 employees from various offices of Punjab were recruited as sample. Sample was collected primarily from three main cities of Punjab i.e. Amritsar, Ludhiana and Jalandhar. The data collection instrument for this study was a structured questionnaire developed by the researcher with the help of experts. The questionnaire is adapted and modified version of already existing scales of occupants' satisfaction with indoor environment quality (IEQ). Results indicate that employees productivity is positively correlated with satisfaction with indoor plants and window view in the office environment. Building Designers and psychologists will be guided by the results of this study for providing better designed spaces and in understanding the built environments impact on occupants. This research study is adding to the existing body of knowledge in environmental psychology by providing insights into employees' perception of their office environment.

Keywords— environment, nature views, plants, perceived satisfaction, correlate, Design, Built environment

I. INTRODUCTION

The 'Environmental Psychology' is a well addressed issue in western countries, USA and Europe and implies an interface between human behaviour and socio-physical environment. Research has indicated that improving the working environment reduces complaints and absenteeism and increases productivity (Roelofsen, 2002).

According to Roger Ulrich, environmental psycho-physiologist at Texas A & M University, even a fairly brief visual contact with plants might be important for promoting restoration from the detrimental effects of commuting, work pressure and other stressors that most urbanites encounter daily. View-settings with dominant vegetation can even foster restoration from stress (Ulrich et al., 1991). Kaplan and Kaplan (1989), researching the psychological benefits of natural surroundings, found they relieved 'attention fatigue', and acted as 'restorative environments'. Fjeld and Bonnevie (2002) reported that use of indoor plants may affect productivity, work satisfaction and even absence due to sickness.

The availability of nature in the view, strongly affect employees satisfaction and restorative ratings. Finnegan and Solomon (1981) found job satisfaction and work attitudes were significantly related to the presence of windows for their sample of 123 office workers and health care providers. Kaplan (1983) had suggested that the satisfaction with the view from the workplace and satisfaction with the opportunity to look out was restorative (Kaplan, 1993). A 2003 study by the Heschong-Mahone Group found a 6% improvement in call center average handling time for workers with the highest rated views, as compared to workers with no view at all.

This issue is substantially handled in western countries however in Indian conditions it is significantly neglected. In India, workplace environment and its related issues were not given much importance. Many organizations still do not give much importance to workplace design. Majority of the employees blamed their working environment for their job dissatisfaction. It is important that the impact of physical aspects on organizational productivity is studied. Very few researches can be found in the field of office environment, this huge research gap needs to be filled by new research scholars. Aim of the present study is to find out the relationship between perceived satisfaction with window view and indoor plants on employees' productivity

II. METHODOLOGY

Sample

A total of 600 employees from various offices of Punjab were recruited as sample. Sample was collected primarily from three main cities of Punjab i.e. Amritsar, Ludhiana and Jalandhar. The age range of the sample was between 25 to 55 years. The employees who were working for the last three years in a particular organization/office were considered for inclusion in this study. The minimum educational qualification of the selected subjects was graduation.

Questionnaire

The data collection instrument for this study was a structured questionnaire developed by the researcher with the help of experts. The questionnaire is adapted and modified version of already existing scales of occupants' satisfaction with indoor environment quality (IEQ) components of other buildings by different researchers. The questionnaire items were developed to reflect the satisfaction/comfort/productivity components of the office environment. The questionnaire for the study contained 44 total items pertaining to employees' general demographics and satisfaction with conditions of the office.

Data analysis

For result findings and in-depth analysis of the different components of office environment on the productivity of the office employees, statistical techniques of correlation has been used. SPSS 16 software as research tool for data analysis was used for this research.

III. RESULTS AND DISCUSSION

TABLE I
DESCRIPTIVE STATISTICS

Variables	Mean	Std. Deviation	Respondents (N)
Productivity	3.62	0.73	600
Indoor Plants	2.66	0.85	600
Window View	2.77	0.87	600

TABLE II
COEFFICIENTS OF CORRELATIONS BETWEEN PRODUCTIVITY AND ELEMENT OF OFFICE DESIGN

Sr. No.	Variable	(r)
1	Indoor Plants	.35**
2	Window View	.36**

** Significant at .01 levels

It is clear that employees productivity is positively correlated with satisfaction with indoor plants and window view in the office environment. The obtained findings are consistent with earlier research (Collins, 1975; Young, 1979; Farrenkopf and Roth, 1980; Finnegan and Solomon, 1981; Ulrich, 1984; Kaplan and Kaplan, 1989; Wolverton, 1989; van der Wal, 1991; Mendell, 1991; van der Wal and Hoogeveen, 1993; Lohr et al., 1996; Dortmund and Bergs, 1997; Fjeld, 1999; Van Dortmund, 2001; Klein Hesselink et al., 2006; Wargoeki et al, 2000; Loomans and Klein Hesselink, 2005; Schempp, 2002; Shibata and Suzuki, 2001; Shibata and Suzuki, 2002; Ulrich, 2002; Wood et al., 2004; van den Berg and WinsumWestra, 2006).

Incorporating plants into the office and proximity to window has been proven to be beneficial to one's health and wellness. Windows are generally seen as favourable influences on health and well-being, providing access to views of the outside and the potential for restorative experiences. Plants can help reduce stress and sickness, which will increase productivity, cognitive attention, and limit absences. In addition, plants can help reduce noise, increase creativity, and can help provide cleaner air for everyone by filtering out bacteria and mold. Positive distractions, such as trees, plants and water do improve workplace quality, privacy and productivity. Plants help reduce distractions due to office noise. Strategically placed, plants quiet down an office. From an economical point of view, it should be of great interest to include plants as a work environment asset, since only small investments are necessary in order to establish a "green" indoor environment. In addition – and probably just as important - the personal well-being and the quality of the everyday working situation may be increased for the employees.

IV. CONCLUSIONS

Building Designers and psychologists will be guided by the results of this study for providing better designed spaces and in understanding the built environments impact on occupants. This research study is adding to the existing body of knowledge in environmental psychology by providing insights into employees' perception of their office environment.

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