

Does Workplace Matter? Perceived Satisfaction with Physical Workspace as a Driver of Worker Performance

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Abstract

Although current research contributes greatly toward a better understanding of the impact of physical work context on knowledge workers' satisfaction and engagement, it does not fully explain the relationship between the physical work environment and performance. We surveyed 408 randomly selected office workers in an effort to understand the relationship between their perceived satisfaction level with work space and performance outcomes. Based on the results, we theorize that it is not the conditions or specific characteristics of work space that drive job satisfaction and engagement, but the individual's perception of satisfaction with their physical work environment. Furthermore, perceived satisfaction with work space does not generate performance outcomes, as those direct relationships proved to be non-significant. The impact of perceived satisfaction with workspace on performance must be processed through affective states, such as satisfaction and engagement.

Keywords: perception of space; organizational work context; office work environment; employee engagement, worker performance outcomes

Introduction

The office, as a physical context, is the environment in which managers and workers produce value by performing knowledge and information work. Substantive research links workplace to employee satisfaction and well-being (Brill et al. 1984; Haynes and Price 2004; Heerwagen et al. 2004; Rice and Mitchell-Ketzes 2003; Vischer 2007a). Research also shows that managerial control of decision making regarding work space negatively impacts employee engagement and well-being (Knight and Haslam 2010). Moreover, employees are rarely given a substantial voice in determining the design of their work space as most facilities' decisions are made by administrative and facilities management based on cost control (Bon et al. 1998; Duffy and Tanis 1993). In fact, for most organizations, minimizing the fixed overhead and lease costs of office space seems to be high priority while defining the objectives of facility planning and office design that trumps employee preferences or employee performance outcomes. This contradicts the often espoused organizational strategy of generating profits through employee innovation and productivity. If there is a relation between perceived satisfaction with the physical work space and performance outcomes, organizations may well be missing important opportunities to influence worker satisfaction, engagement and, ultimately, organizational performance.

At a time when overall engagement of the workforce in knowledge and information organizations is reported to be less than 30% and of those 30% who are engaged, 42 % are actively disengaged (Gallup-Healthways 2012), we must ask the all-important question: What is effectiveness of the relationship between perceived satisfaction with work space and engagement with work? Does this relationship effect employee perception of their ability to contribute as innovators in a knowledge work organization? The primary focus of this study is to measure the effect of employees' perception of satisfaction with the individual workspace and the ambient environment on the performance of the employee as innovator in a knowledge work organization. We will also evaluate the role of job satisfaction and emotional as well as cognitive engagement in a serial effect between perception of satisfaction with work space and performance. The relationship between job satisfaction, engagement and performance has been studied extensively in social science research (Judge et al. 2001; Macey and Schneider 2008; Petty et al. 1984; Saks 2006; Thoresen et al. 2003). However, the physical work environment has been tenuously linked to this body of research. Thus, our primary focus in this study is on the effect of the exogenous variables of perceived satisfaction with individual and facility work space and their effects on the relationships between the psycho-social constructs in the conceptual model.

Literature Review

Although numerous studies have looked at different conditions and attributes of work environments, there is little information as to how and why affective reactions to work context are influenced by employees' predispositions, what adds value to knowledge work organizations, and why organizational leadership should invest in more mindful design of workplace environments. Social science research on the relationships between office environment and worker performance has focused on 'social' arenas of work such as climate, culture, and work design but largely neglected the physical context of work (Baard et al. 2004; Posner et al. 1985; Rich et al. 2010; Staw et al. 1994). Research in the domain of facilities management, in contrast, focuses on the antecedents, such as physical attributes and conditions of a work space that are expected to influence behavioral factors of office work (Brand and Smith 2005; Fischer et al. 2004; Haynes 2007; Lee and Brand 2005; Sundstrom et al. 1980; Vischer 2007b). In practice, workplace design strategies are often influenced by industry trends, design styles and handed down traditions of generalized guiding principles. The primary source of requirements for workspace design projects is informal observations and interpretations of employees' work patterns carried out by managers without specialized training in that task (Duffy et al. 1992). Professionals then use this information to develop standards programs and modular space allocations based on user group stereotypes. This approach has been shown to generate only marginal success when reported through post-occupancy evaluations of office environments by individual occupants (Way and Bordass 2005). These leave organizations dubious about their return on investment.

The need for perceived control of work environments on the part of employees and their involvement in planning and designing their work space originated in the early nineties (Becker and Steele 1995; Becker 1991). Perceived quality of work environment can be related to job perception, attitude, and job satisfaction (Sundstrom et al. 1994). Early studies indicated that workers' satisfaction with their workspace affects their job satisfaction and organizational commitment (Carlopio 1996). More recent studies have sought to determine the components of work environments that drive office productivity such as open-plan or full-height walls and natural

light (Haynes 2007); as well as, factors such as flexibility and adjustability of furniture (Lee and Brand 2005).

Although these results contribute to a greater understanding of the impact of work context on employees, they do not fully explain the relationship between the physical work environment and performance for two reasons. First, we posit that employees do not directly associate workspace with performance without intervening factors such as satisfaction and engagement, which act as emotional and cognitive filters. Second, the individual's perceptions of workspace are reflexive actions guided by one's own predispositions rather than the workspace characteristics. In other words, the objective quality of the physical work context does not influence the perceived satisfaction with workspace but rather the employee's self-assessed level of efficacy he/she derives from the workspace.

The focus of this study is to empirically establish the triadic relationship amongst external, physical environment (E), individual, personal attributes (P), and intrinsically motivated behaviors, such as satisfaction and engagement (B), in the context of knowledge worker office work environment.

$$E \text{ (physical environment)} \rightarrow P \text{ (personal attributes)} \rightarrow B \text{ (intrinsic motivations)}$$

Research Model and Hypotheses

The relationship between organizations, employees and space are changing (Grimshaw, 1999). Office work space has been redefined from static, familiar and predictable to transitional, flexible and even virtual. Since the advent of "burolandschaft" (office landscape) in the 1960s office work space has transitioned from individual, cellular office to open-plan workstations. According to the U.S. Department of Labor, Bureau of Labor Statistics (2012), American office workers spend 8.7 hours per day in work related activity. This could mean sitting at a desk, in a workstation or around a conference table. The impact of their perceived satisfaction with that work space could have dramatic effect on how they feel, think and act. Furthermore, these reactions cannot assume to be universal but rather unique to the individual based on preferences and traits the individual worker brings to the job. These personal characteristics cannot be assumed to be correlated to the workers job description of classification, which is typically how work space is designated in the knowledge work environment.

The perception and experience of the office workplace is not only impacted by their immediate space but also by the ambient conditions of the facility. Depending on the predispositions of the individual worker, the perceptions of the facility lighting, brightness, ventilation, and temperature can impact the person's mood, attention level, and biological functioning (Carlopio 1996; Vischer 2007b). Our model shown in Figure 1 reflects this notion that the perceptions of satisfaction with the individual workspace and the ambient conditions of the facility evoke affective reactions toward satisfaction and engagement with one's job.

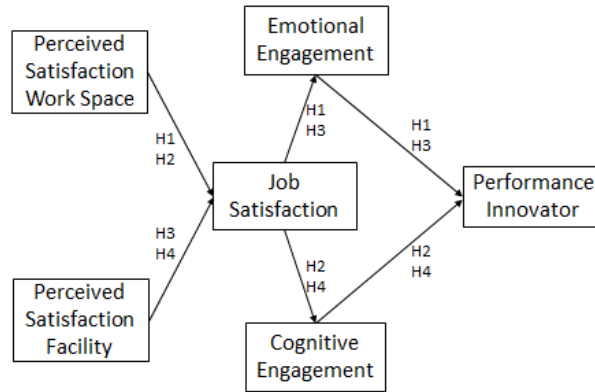


Figure 1. Conceptual model

A number of studies have concluded that satisfaction with specific attributes of workspace are directly associated with job satisfaction (Carlopio 1996; Lee 2006; Oldham 1988; Sundstrom et al. 1994; Zalesny et al. 1985). We posit in this study that it is the unique, affective nature of individual perception toward physical space that is critical in understanding the relationship of work context to job satisfaction and its influence on worker engagement. Thus, in the context of workplace design, the unit of analysis in understanding this relationship needs to shift from group to individual level.

Thus, we hypothesize the following:

H1: Perception of satisfaction with individual workspace mediated through first job satisfaction and then emotional engagement positively impacts performance.

H2: Perception of satisfaction with individual workspace mediation through first job satisfaction and then cognitive engagement positively impacts performance.

H3: Perception of satisfaction with facility mediated through first job satisfaction and then emotional engagement positively impacts performance.

H4: Perception of satisfaction with facility mediated through first job satisfaction and then cognitive engagement positively impacts performance.

Research Method

To validate our research model (Figure 1), we conducted an electronically disseminated cross-sectional survey. The survey was constructed to measure the influence of perceived satisfaction of knowledge workers in an office environment on the extensively studied relationships of job satisfaction and engagement on performance of employees as innovators. Our unit of analysis was the individual knowledge worker participating in a self-administered and self-reported data collection effort.

Construct Operationalization

In order to test our conceptual model, we utilized validated scales from existing literature. The selected scales were all Likert-type measures on a five-point distribution defined as reflective (Jarvis et al. 2003). The survey instrument was developed from review of relevant literature from both the organizational behavior and the workplace environment domains. We adapted existing scales. The final survey instrument consisted of 35 items covering the constructs described below.

Our control variable was workspace type, given the on-going discussion in the workplace arena relative to the benefits of open-plan versus enclosed office accommodation of employees (Brennan et al. 2002; Brookes and Kaplan 1972; Zalesny et al. 1985).

Perception of Satisfaction with Work Space (Independent Variables)

In reviewing previous studies on the perception of physical office environments on employee attitudes, we found two distinct approaches: (a) emotion (perceptions or feelings) and (b) judgment (qualities, conditions). We selected the 18 item Satisfaction with Environmental Features (SEF) scale as modified by Veitch et al. (2007), which focused participants on their satisfaction with their current physical space. Participants responded on a 5-point Likert scale ranging from (1) 'extremely dissatisfied' to (5) 'extremely satisfied'. The original scale had three dimensions, namely privacy/acoustics, ventilation/temperature, and lighting with a reliability scores ranging from 0.76 to 0.88.

Job Satisfaction (Mediator)

The job satisfaction scale was adapted from a study conducted on aspects of psychological well-being (Warr et al. 1979). We utilized 14 of the 15 items in the job satisfaction scale, excluding only the question pertaining to rate of pay as we did not consider the question relevant for our study of randomly selected participants. The remaining items asked about the satisfaction with intrinsic and extrinsic features of the job on a 5-point Likert scale ranging from (1) 'very dissatisfied' to (5) 'very satisfied'. The alpha reliability for the original scale was 0.85.

Engagement (Mediator)

We used two dimensions of the engagement scale compiled to reflect Kahn's (Kahn 1990, 1992) definition of engagement (Rich et al. 2010). The two dimensions were emotional (six items) and cognitive (four items). We chose not to utilize the physical engagement scale given that our intent was to compare the positive affect of the emotional measures with the intellectual aspects of the cognitive construct, which focused on levels of attention and absorption on the job. The question pertained to the extent of agreement/disagreement with the items relative to the respondent's job on a 5-point Likert scale. The alpha reliability of the overall scale was 0.95.

Performance (Dependent Variable)

In order to measure our performance outcomes construct, we used the Role-Based Performance Scale (RBPS) (Welbourne et al. 1998). While most scales measuring performance focus on employee behavior on the job, we wanted to show performance that meets broader organizational objectives. The RBPS covers five dimensions of performance: job, career, innovator, team, and organization. In looking to show the relationships that would be convincing to organizational leadership between workplace context and performance outcomes, we decided to focus on the innovator dimensions of performance as a metric in knowledge work context. Given the self-reporting nature of the survey, we did not think that the team and organization dimensions would be fairly represented. The respondents were asked to address each item using a 5-point Likert scale ranging from (1) 'need much improvement' to (5) 'excellent'. The alpha reliability for all the dimensions of the scale ranged from 0.76 to 0.90.

Sample

The study sample was created from an on-line panel data respondent's pool of 860 randomly

selected office workers from a variety of occupations and organizations who completed the survey over a two week period in November 2014. A data set was then derived using the following filters: (1) full-time employed; (2) works in an office environment; (3) has a designated workspace; and (4) comes to the office on a regular, weekly basis. Of that total, we utilized a random sample of n=408 fully completed surveys, of which half the participants were female; less than 1% worked in the facility less than one year and over 50% more than six years; 40% worked in a private office, 47% in a semi-private partition enclosed workstation and 13% at an open desk.

Data Analyses

We used SPSS (v. 22.0) software to perform several data screening procedures detailed in the analysis sections below to ensure a clean data set prior to analysis. We then conducted an exploratory factor analysis (EFA) to determine how well the questions in our survey measured the intended constructs. We used AMOS (Analysis of Moment Structures) software to conduct a confirmatory factor analysis (CFA) on the solution developed during EFA to test our measurement model for invariance, reliability, convergent and discriminant validity, common method bias and model fit. Finally, we created a structural equation model (SEM) based on our research model using the composite factors developed during CFA. To test for chained, serial mediation we followed the Shrout and Bolger (2002) approach using bootstrapping.

Measurement Model

An exploratory factor analysis (EFA) was conducted in order to determine how well our survey instrument measured the constructs. We used Promax rotation and Maximum Likelihood to extract the six factors in our conceptual model. At the completion of the EFA, the six factors were comprised of 32 items.

Convergent validity was achieved as all the factor loadings were above 0.5. Discriminant validity was evident as no cross loading were above 0.2. In addition, correlations between the factors were all below 0.7. Reliability was examined using Cronbach’s alpha for each factor (Fornell and Larcker 1981). All the results were well above the designated cut-off of 0.7 (Hair et al. 2010) as shown on the diagonal in Table 1.

Table 1. Means, Standard Deviations and Correlations Reliability

Factor	MEAN	S.D.	SatWS	SatFac	JobSat	EmoEng	CogEng	PerfInno
SatWS	2.917	0.680	.906*					
SatFac	3.178	0.620	0.599	.864*				
JobSat	2.787	0.639	0.521	0.444	.920*			
EmoEng	3.866	0.857	0.49	0.455	0.693	.954*		
CogEng	4.055	0.806	0.381	0.39	0.503	0.683	.930*	
PerfInno	3.530	0.700	0.369	0.325	0.464	0.587	0.511	.930*

* Cronbach alphas are along the diagonal

The model was further refined through appropriate covariance relationships using modification indices (Byrne and Ragin 2009). The overall fit for the model was good (CMIN/df = 1.89, RMSR = 0.04, TLI = 0.958, CFI = 0.962, GFI = 0.885, RMSEA = 0.047, PCLOSE = 0.85). The composite reliability exceeded the acceptable threshold level (>0.7) and the average variance explained (AVE) for all factors was greater than 0.5 (Hair et al. 2010). To test for discriminate validity we compared the square root of the average variance explained (AVE) to the inter-factor correlations

and related average variance explained (AVE) to average shared variance (ASV) and maximum shared variance (MSV). To provide evidence for convergent validity of the measures, each factor's average variance extracted (AVE) was examined, as recommended by Fornell and Larcker (1981). The results demonstrated adequate discriminate and convergent validity.

Structural Equation Model

Structural Equation Modeling (SEM) is especially suited for hypotheses testing since a priori hypotheses can be directly specified for estimation. Best fit was achieved prior to testing for mediation. The initial model had to be modified in two ways: (a) by releasing the direct effects between the independent and dependent variables, which seemed to be theoretically logical as an indicator of full rather than partial mediation effects; and (b) by co-varying the error terms of emotional and cognitive engagement, which confirmed that the variables measure common trait of engagement. The model fit statistics were all quite good (CMIN/df = 1.99, RMSR = 0.018, TLI = 0.990, CFI = 0.995, RMSEA = 0.049, PCLOSE = 0.467). The final results of the path analyses are reflected in Figure 1. All the paths reached statistical significance at $p < 0.001$ level. We tested for mediation by using Mathieu and Taylor's (2006) recommended bootstrap method using 2000 bias corrected (BC) bootstrapping samples at 95 BC confidence level, while applying the Shrout and Bolger (2002) approach for determining the chain mediation effects.

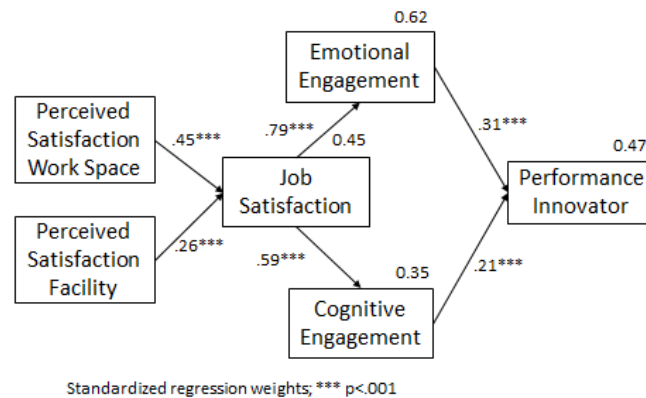


Figure 2. Structural Equation Model

Results and Findings

The standardized path coefficients with associated significance (p-value) and coefficients of determination (r^2) of the endogenous variables are reflected in Figure 2. The perceived satisfaction with workspace and facility mediated by job satisfaction and engagement explain 47% of the variance in performance as innovator in knowledge workers who work in an office ($r^2 = 0.47$). In the fully saturated model, the direct effects (not shown) proved to be weak and non-significant indicating that full mediation is highly likely. The notable results of the overall model indicate that the effect of perceived satisfaction with individual workspace has a much greater impact on job satisfaction than do perceived satisfaction with facility. Also important to note is the fact that emotional engagement factors account for a much greater portion of the explained variance than does cognitive engagement on performance of employees as innovators. These results lead us to conclude that individual employee perceptions of their physical work environment plays a notable and important role in employee behavior and attitude, as well as, their ability to participate in

innovator performance outcomes. These results are not based on the type of work space the employee is occupying as we controlled for three types of accommodations (private office, panel enclosed workstation and open desk).

Mediation Findings

Two paths were hypothesized to affect performance as innovator, both originating with the individual knowledge worker's perception of satisfaction with the physical work environment. One pertained to individual work space (H1 and H2) and the second with the overall facility (H3 and H4). Each path was mediated by two variables, namely job satisfaction and engagement, in a serial configuration. Engagement has two directions for each path in order to test the effects of emotional versus cognitive engagement, which proved to be two distinct factors in our pattern matrix during EFA. All hypotheses were supported based on the Shrout and Bolger (2002) interpretation of complete mediation. For complete mediation, the independent to dependent variable direct effect is significant, but significance is eliminated in the presence of mediators indicating that all the influence of IV to DV is through the mediators. The mediated results are summarized in Table 2.

Using the perception of satisfaction with individual workspace as the exogenous variable, we found multiple mediation to be fully supported (H1 and H2) based on the Shrout and Bolger (2002) method. While the direct effect from independent to dependent variables was significant, it became non-significant when the mediators were introduced. On that basis, we can conclude that perceiving your work space as satisfactory leads to greater job satisfaction (unstd. $\beta=0.610$; $p < 0.001$). This in turn leads to increased engagement with emotional engagement playing a stronger role than cognitive engagement (emotional engagement unstd. $\beta=0.967$, $p < 0.001$, r^2 of the overall model=0.62; cognitive engagement unstd. $\beta=0.667$, $p < 0.001$, r^2 of the overall model=0.35). Finally, both emotional and cognitive engagement positively predicts employee performance as innovator (unstd. $\beta=0.381$, $p < 0.001$; unstd. $\beta=0.303$, $p < 0.001$). For both paths, emotional ($c'=0.032$, ns) and cognitive ($c'=0.044$, ns), the direct effects are low and non-significant, while they were significant without the mediators. This confirms the relationship between perception of satisfaction with individual work space and performance of employees as innovators, if completely mediated by job satisfaction and employee engagement. Furthermore, the indirect effects ($abc+af+ec$) between perceived satisfaction with individual work space and performance through job satisfaction and both paths of engagement are significant (unstd. $\beta=0.419$, $p < 0.001$; unstd. $\beta=0.407$, $p < 0.001$) further supporting the hypothesized complete mediation.

Similarly, with perception of satisfaction with the facility, the hypothesized serial mediation is fully supported (H3 and H4) according to Shrout and Bolger (2002). While the direct effect from independent to dependent variables was significant, it became non-significant when the mediators were introduced. Furthermore, the indirect effects between perceived satisfaction with individual work space and performance through job satisfaction and both paths of engagement were significant further supporting the hypothesized complete mediation.

Table 2. Hypotheses Summary and Mediation Results

	MEDIATION			EVIDENCE	SUPPORTED?
				β and p-value	
H1	SatWS-->JobSat-->EmoEng-->InnoPerf	a	X-->M1	0.61***	Supported
		b	M1-->M2	0.967***	COMPLETE

		c	M2-->Y	0.381***	MEDIATION
		e	X-->M2	0.127**	
		f	M1-->Y	0.239 ***	
		c'	X-->Y(D)	0.032 ns	
		abc+af+ec	X-->Y(I)	0.419***	
		C	X-->Y(T)	0.451***	
H2	SatWs-->JobSat-->CogEng-->InnoPerf	a	X-->M1	0.61***	Supported
		b	M1-->M2	0.667***	COMPLETE
		c	M2-->Y	0.303***	MEDIATION
		e	X-->M2	0.12*	
		f	M1-->Y	0.406***	
		c'	X-->Y(D)	0.044 ns	
		abc+af+ec	X-->Y(I)	0.407***	
		C	X-->Y(T)	0.451***	
H3	SatFac-->JobSat-->EmoEng-->InnoPerf	a	X-->M1	0.619***	Supported
		b	M1-->M2	0.963***	COMPLETE
		c	M2-->Y	0.381***	MEDIATION
		e	X-->M2	0.157**	
		f	M1-->Y	0.243 ***	
		c'	X-->Y(D)	0.032 ns	
		abc+af+ec	X-->Y(I)	0.438***	
		C	X-->Y(T)	0.47***	
H4	SatFac-->JobSat-->CogEng-->InnoPerf	a	X-->M1	0.619***	Supported
		b	M1-->M2	0.613***	COMPLETE
		c	M2-->Y	0.303***	MEDIATION
		e	X-->M2	0.234***	
		f	M1-->Y	0.424***	
		c'	X-->Y(D)	0.021 ns	
		abc+af+ec	X-->Y(I)	0.449***	
		C	X-->Y(T)	0.47***	
***P<.001; **P<.05; P<.01; ns=Not Significant; β are unstandardized values					

Discussion

This study examines the effect of the physical work environment on employee performance, specifically the ability to innovate, in knowledge work organizations. The notion that employee attitudes and behaviors contribute to performance outcomes is commonly discussed in organizations' human resources departments and accepted by organizational leadership. In fact an extensive Leaman and Bordass survey conducted in early 2000's with occupants of 151 buildings resulted in a strong positive correlation between perceived building comfort and self-reported productivity ($r^2=0.7$; $p<0.0001$). However, even in organizations where work context is acknowledged as a facilitator of transformation and an enabler of innovation, its significance on business strategy is still not fully understood (Levin 2005). For example, under the most recent trends, some large technology companies approach work space as a commodity to be sold off by employing distributed work models and only providing non-dedicated or communal workplaces in a shared office context. This approach encourages employees to work anywhere but the office under the auspices of work-life balance. Conversely, other organizations promote work space as a home-away-from-home by providing all the necessary amenities to keep workers at work for as many hours as possible in hopes of promoting innovation and productivity through face-to-face

interaction. In a preceding qualitative study on this topic, we found that an under represented voice in this workplace strategies dilemma is the individual worker.

Human resource analysts regularly assess employees' job satisfaction and engagement metrics around the organization's core mission but do not necessarily consider the influence of the physical work environment. Past studied that looked at the relationships between work space and employee satisfaction, engagement and performance tended to identify specific characteristics and attributes of work space that can be associated with outcome variables. This study demonstrates that it is the individual perceptions of satisfaction with the personal and ambient work environment that influence employee self-efficacy disposition, which mediated by satisfaction and engagement drives performance outcomes for innovation. Two additional conclusion we can derive from the results are: (a) satisfaction with physical work environment does not have a direct causal relationship with performance outcomes, but rather it affects job satisfaction and creates a notable increase in engagement, with a much greater impact on emotional than cognitive engagement; (b) the perception of satisfaction with the physical work environment, both individual and facility, is the cause of this effect rather than the condition, style or layout characteristics of work space. This conclusion is supported by the fact that the data was collected from a diverse and random sample of office workers in a self-reported survey. Thus, the specific type or quality of workspace is not relevant in this analysis, but rather the perception the individual employee has of their work space that is driving these results.

This research leads us to believe that the employees' active participation is essential in the development of the organizational workplace context. Without their input, the design process of the knowledge work environment is a two legged stool comprised of representative management and the design team. Furthermore, employee consideration cannot be limited to work styles and work patterns but must also include the predispositions that the employee brings to the job, which influence their perceptions and motivations.

Based on empirical research and practitioner data, employee disengagement is perceived as having a detrimental impact on organizational performance outcomes (Pech and Slade 2006). This study shows that the antecedent to employee satisfaction and engagement is perceived satisfaction with the physical work environment. Thus, we can conclude that if the employee feels adequately satisfied with their work space it will contribute greatly to their satisfaction with their job, they will be more engaged and will tend to be more innovative in the way they perform on the job. Workplace matters!

Limitations and Implications for Future Research

Multivariate analysis methods present unique limitations in achieving sufficiency of measurement. There are no objective ways of determining if the items selected capture the core meaning of the variables. Although the focus of this study was to ascertain the perceptions of satisfaction of office occupants with the exogenous factors of satisfaction with workplace and satisfaction with facility, we defined the measures using physical and ambient conditions. We believe to have satisfied our intent by phrasing the question to address the satisfaction of respondents and administering the survey to a random sample eliciting self-reported data, which supported our efforts in capturing the individual's emotional response to their surroundings. However, in order to further contribute to theory development in this area of study, researchers may be well served to select an emotional

response scale to the respondent's internal representations of work space rather than their actual work space. This would strengthen the findings that the individual's perception of satisfaction with the physical workspace based on individual work patterns and mental models impacts their job satisfaction and engagement rather than specific characteristics or attributes of work space deemed to be universally effective.

Conclusions

Organizational leadership should involve their employees in real estate and facilities decision making in order to affect job satisfaction and engagement. Architects and designers must include the individual, as well as, the aggregated needs of employees in their workplace planning and design solutions. Programmatic criteria that are based on standardization and stereotyping of functional groups do not address the perceptions of individual needs of employees. A coordinated partnership with real estate, facility management, human resources, information/communication specialists, as well as, architects, planner, and designers should arise in all knowledge and information work organizations that focus on the individual flourishing of the employee.

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