



Office Architectural Privacy and Employee Efficiency of Manufacturing Companies in Port Harcourt, Nigeria

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Abstract: *This study examined the relationship between office architectural privacy and employee efficiency of manufacturing companies in Port Harcourt. The study adopted the cross-sectional survey design. Primary data was generated through structured questionnaire. The population of the study was 253 employees of seven (7) selected manufacturing companies in Port Harcourt. The sample size of 154 was determined using the Taro Yamane's formula for sample size determination. The research instrument was validated through supervisor's vetting and approval while the reliability of the instrument was achieved by the use of the Cronbach Alpha coefficient with all the items scoring above 0.70. The hypotheses were tested using the Spearman's Rank Order Correlation Coefficient. The tests were carried out at a 95% confidence interval and a 0.05 level of significance. The findings of the study revealed that there is a significant relationship between office architectural privacy and employee efficiency of manufacturing companies in Port Harcourt. The study recommends that manufacturing companies should*

Keywords: *Architectural Privacy, Employee Efficiency, Task Accomplishment, Timeliness Manufacturing Companies*

INTRODUCTION

Research has established that employee behaviour is influenced by office layout (Becker & Sims, 2001; Kraut, Fussell, Brennan, & Siegel, 2002). Consequently, office layouts are constantly being designed and redesigned to improve effectiveness (Baldry & Barnes, 2012; Ferron, Pattini & Lara, 2011), aesthetic appeal (Elsbach and Bechky, 2007; Ridoutt, Ball, and Killerby, 2002) and work efficiency (Robertson, Huang, O'Neill, and Schleifer, 2008). However, there is limited research that explores the impact of office architectural privacy design on employee efficiency.

Office layout means the systematic arrangement of office equipment, machines and furniture and providing adequate space to office personnel for regular performance of work with efficiency. Running a company is not as simple as it seems even if there is a streamlined process in place. You have a huge responsibility to cover all bases to steer it in the right direction. One of the most important factors to consider here is employee productivity or efficiency, which involves a number of aspects that have a huge effect on it. If we start from the most basic to lay down the right foundation in boosting employee productivity, a strategic office design is on top of the list.

A well-designed office space taking into cognisance the privacy of the user establishes a kind of working environment that offers a host of benefits to your employees. If you skip out on designing your office space strategically, your employees are likely to fall behind in completing tasks on time. Before buying or renting an office space, you should take a moment to consider both the pros and cons of its design. You should go through every detail and understand the impact it would have on your employees and the company as a whole.

Employees will be spending a huge chunk of their day inside the office, so an adequately lit and well-ventilated working area is a great motivator for them to go to work every day. A well-lit and well-ventilated work space is found to decrease the number of absences and increase satisfaction by 24%. In turn, productivity goes up by 16%. Truly, being comfortable while working decreases absences and boosts satisfaction, which, in turn, increases productivity? Comfort is crucial in the workplace, so providing ergonomic furniture is key to reducing injuries. This results in higher efficiency, employee satisfaction, and fewer absences.

Indeed, most employees will be sitting for hours during their shift, so a comfortable chair can keep them healthier. There will be reduced aches and pains in parts of their body from sitting for extended periods. What the eyes can see can either have a positive or negative effect on a person's brain activity, so adding a bit of color to your office can benefit your employees. The right combination reduces stress, boosts creativity, and raises morale. A study done by the University of Massachusetts found that adding color to your office can help employees, as it reduces stress, increases creativity, enhances morale, broadens their appreciation of diversity, and encourages discussions and expressions of opinions. You can choose the color theme for your office based on your industry's need. Specific hues improve certain brain functions that can help boost productivity at work. You can also mix in artistic pieces for added enthusiasm and inspiration.

More specifically, organizational culture has been shown to influence job satisfaction (Shiu and Yu, 2010) and organizational performance (Goodman, Zammuto, and Gifford, 2001). Given the reported influence of organizational culture on performance, organizational culture has been recognized as an important determinant of competitive advantage (Goodman et al., 2001). Previous research (Elsbach and Pratt, 2007; Heerwagen, Kampschroer, Powell, and Loftness, 2004) has revealed that the physical work environment can influence human interaction and its symbolic function. Three key office layout features that are frequently studied are 'architectural privacy', 'visual access' and 'physical proximity'.

Offices with fewer physical barriers and internal walls are described as being more open, with lower levels of architectural privacy and higher levels of visual access and physical proximity to other employees. Less studied is a fourth office layout feature, 'workstation equality', which refers to similarities between employee workstations. Workstation equality is often discussed in terms of what it symbolises (Zhang and Spicer, 2014), as opposed to its direct impact on behaviour. Employees within the same workplace can differ in terms of the privacy and space

offered by their workstation, and this symbolically represents differences in status between employees (; Zhang and Spicer, 2014). Status difference can, in turn, affect the way people within the organization communicate with one another (Welch, 1980).

The purpose of this study is to investigate the relationship between office architectural privacy and employee efficiency of manufacturing companies in Port Harcourt, Nigeria.

This study was guided by the following

- i. What is the relationship between office architectural privacy and task accomplishment in manufacturing companies in Port Harcourt, Nigeria?
- ii. What is the relationship between office architectural privacy and service quality in manufacturing companies in Port Harcourt, Nigeria?
- iii. What is the relationship between office architectural privacy and timeliness
- iv. in manufacturing companies in Port Harcourt, Nigeria?

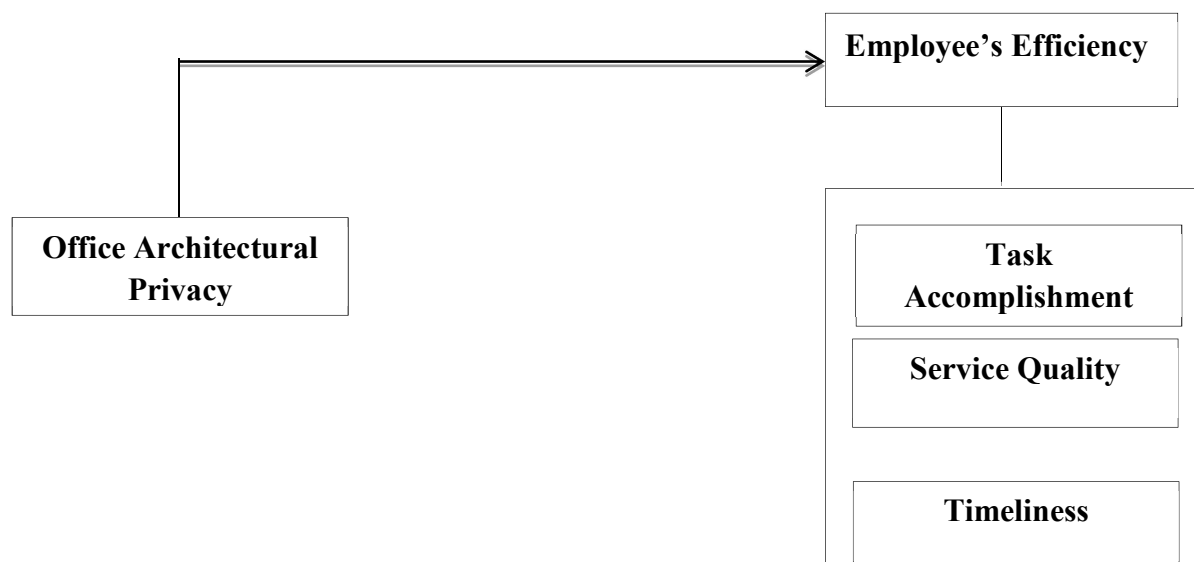


Fig.1 Conceptual framework for office architectural privacy and employee's efficiency

Source: Author's Desk Research, 2021

LITERATURE REVIEW

Theoretical Foundation

Knowledge-Based View Theory

According to the knowledge-based view (KBV), innovative knowledge is what companies require to outperform others in an industry (Malik & Malik, 2008). KBV considers a firm to be a “distributed knowledge system” composed of knowledge- 28 holding employees, and this view holds that the firm's role is to coordinate the work of those employees so that they can create knowledge and value for the firm. Carlucci et al., (2004) contends that knowledge assets are as important for competitive advantage and survival, if not more important, than physical and financial assets. Knowledge and capabilities-based views in strategy have largely extended resource-based reasoning by suggesting that knowledge is the primary resource underlying new value creation, heterogeneity, and competitive advantage (Barney, 2001; Felin & Hesterly, 2007). Furthermore, Felin and Hesterly contend that research and practice are replete with empirical and anecdotal evidence of the primacy of individuals as the locus of knowledge and source of new value. An organizational capability (Tsai, Li, Tsai & Lin, 2012) is often established by a bundle of related knowledge which includes knowledge items and the level of such items.

KBV considers knowledge as the most important source for firms’ competitive advantage (Feng, Chen & Liou, 2005). It has been argued that knowledge is a crucial resource of firm’s strategies and the origin of competitive advantage as the integration of a bundle of knowledge rather than individual knowledge (Grant, 1996; Felin & Hesterly, 2007). Moreover, knowledge aids firms in strategic development of products and market, and provides an alternative way of achieving differentiation and competitive advantage. KBV has facilitated a shift from a competitive advantage that is based on market position to one that focuses on firm’s capabilities (Felin & Hesterly, 2007). Moreover, the orientation of firm’s strategies has been also changed from position-based to capabilities-based. Firms often absorb new knowledge to improve their capabilities 29 from collaborative partners by alliance (Kale & Singh, 2007) or developing effective models (Capron & Mitchell, 2009). KBV stresses knowledge-based competition and illustrates that firms can differentiate themselves on the basis of their KM strategies. While each of the individual knowledge assets is complex to acquire and difficult to imitate, firms that achieve competitive advantage through KM have also learned to combine their knowledge assets to effectively create an overall KM capability.

Architectural Privacy

Privacy can be defined as a feature of the physical environment. Often referred to as ‘architectural privacy’, it refers to ‘the visual and acoustic isolation supplied by an environment’ (Sundstrom, Burt, and Kamp, 1980, p. 102). Office architectural privacy influences the extent to which people are exposed to distractions and disturbances by others (Kupritz, 2003; Sundstrom et al., 1980). The use of walls and physical barriers create higher levels of architectural privacy; while large, open office spaces with no physical barriers separating workstations provide minimal privacy. Lower levels of office architectural privacy can lead to greater opportunity for

interaction, communication and collaboration (Becker and Sims, 2001; Kim and de Dear, 2013; Stryker, 2004), all of which are valued within clan cultures (Cameron and Quinn, 2011).

However, clan cultures also value relationships (Cameron and Quinn, 2011) and low levels of office architectural privacy can also lead to undesirable outcomes such as distractions and blurring of psychological boundaries (Sundstrom et al., 1980). While low levels of office architectural privacy can have both positive and negative effects (Becker and Sims, 2001; Kim and de Dear, 2013; Stryker, 2004; Sundstrom et al., 1980), other research (Kupritz, 2005) suggest that the effect of office architectural privacy levels may be dependent on other factors. Kupritz (2005), for example, found that individuals weighted office architectural privacy differently depending on their job type. Offices with walls and a door were found to minimise distractions for business professionals, managers and technical professionals, but not for administration support services. Office architectural privacy may also be perceived differently depending on the extent to which human interactions (such as communication and collaboration) are valued within the workplace.

For example, in organizations that value team communication, distractions and disturbances may not be viewed as negatively as in organizations that do not value interaction as highly, or that value hierarchical communication. As such, office layout may influence organizational culture. Office architectural privacy could, for example, influence the emergence and maintenance of 'clan culture', whereby teamwork and collaboration are valued cultural practices (Cameron and Quinn, 2011). To date, no research has focused on the effect of the level of office architectural privacy on workplace culture.

Employee Efficiency

Efficiency refers to how an organization uses its resources such as available funding and staff to achieve organization objectives. Efficiency measures include, per unit costs which refers to a measure of per unit cost and reveals how many resources are consumed in producing a unit of service, Cycle time: Measures the amount of time it takes for a process to be completed. Response time: Measures the amount of time it takes to respond to a request for service. Backlog: Measures the amount of work in queue, waiting to be processed. One way is to measure total work in queue waiting to be processed. Another way is to measure backlog as the amount of work not processed within a required or targeted time frame. Staffing ratios: Another way of looking at staffing is computing a ratio of staffing to a particular function or in comparison to the total organization and per unit equipment utilization: Measures the efficient use of equipment. Efficiency is all about resource allocation across alternative uses (Kumar and Gulati, 2010).

Efficiency measures relationship between inputs and outputs or how successfully the inputs have been transformed into outputs (Low, 2000). To maximize the output Porter's Total Productive Maintenance system suggests the elimination of six losses, which are: reduced yield –from start up to stable production; process defects; reduced speed; idling and minor

stoppages; set-up and adjustment; and equipment failure. The fewer the inputs used to generate outputs, the greater the efficiency. According to Pinprayong and Siengthai (2012) there is a difference between business efficiency and organizational efficiency. Business efficiency reveals the performance of input and output ratio, while organizational efficiency reflects the improvement of internal processes of the organization, such as organizational structure, culture and Community.

Many companies' returns are under pressure. This makes it important that employees carry out the correct tasks (effective) in the right way (efficient). By working efficiently, more can be produced with the same amount of input (resources)(1). In short, achieving more for lower costs, a higher return and less pressure.

Measures of Employees' Efficiency

Task Accomplishment

Task accomplishment is a measure of an employee's productivity and involves their contribution to overall organizational productivity and effectiveness, it refers to actions that are part of the formal reward system and addresses the prescription as indicated in the descriptions of the role (Williams and Karau, 1991). It shows the level or the extent an employee achieves a given target. In general, task accomplishment comprises of activities that translates the organizations policies, missions and resources into tangible and intangible goods produced by the organization and to enable efficient operation of the organization (Motowidlo et al., 1997). Thus, task accomplishment covers the fulfilment of the requirements that are part of the agreement between the employee and the organisation. Borman and Motowidlo (1993) pointed out that task accomplishment is the effectiveness and efficiency with which job incumbents perform activities that contribute to the organization's technical core and assist in moulding the psychological state of the organization (Borman and Motowidlo, 1993). They further suggested that in accomplishing a given task there are two aspects to it, which are interpersonal facilitation and job dedication. Interpersonal facilitation includes cooperative and helpful acts that help the effectiveness of co-employee. While job dedication includes self-disciplined and motivation to support organizational objectives and goals (Van Scotter and Motowidlo, 1996).

Service Quality

Service delivery is a continuous, cyclic process for developing and delivering user focused services. It is further defined in four stages as user engagement, service design and development, service delivery and lastly assessment and positive change of service (Dachs et al., 2004). Other scholars have propounded other definitions and according to Carrillat et al. (2007), service delivery is the physical access or reachability of services that meet a base standard. The later regularly requires detail as far as the components of service delivery, for example, essential equipment, medications and products, healthy workforce, and rules for

treatment. Service delivery denotes the ability of the client to pay for the services where data can be collected by facility visits or by household interviews (Berghman et al., 2006). In this study, service delivery was defined as the willingness and readiness of a workforce to provide services in a dependable, accurate and responsive manner while utilizing the available resources.

The SERVQUAL model was developed by Parasuraman et al., (1988) to define service quality by means of the gap between the customers' perceptions and the expectations about organization's service quality performance. The model distinguishes five determinants of administration quality as effects, unwavering quality, responsiveness, confirmation and sympathy. It is measured administration conveyance since it is a settled instrument that has been utilized as a part of different reviews and its psychometric properties have been examined by some of the studies (Asubonteng et al., 1996; Zhao et al., 2010). Consequently, service quality is composed of perceived quality and expected quality. While perceived quality can be defined as the customer's judgment about the general position and excellence of the administration they get, expected quality clarifies the assumptions about the administration they have gotten. Baki et al. (2009) point out that on this scale, otherwise called the crevice examination, benefit quality is characterized as an estimation of the degree to which the offered benefit quality empowers to meet client desires. Assurance which is an aspect of service quality implies the employees' knowledge and courtesy levels and their ability to inspire trust and confidence (this dimension also includes competence, courtesy, credibility, and security).

Timeliness

When the employees are productive, they accomplish more in a given amount of time. In turn, efficiency saves their company money in time and labour. When employees are unproductive, they take longer time to complete projects, which cost employee's more money due to the time lost (Olajide, 2000). The importance of higher productivity of the employees in public enterprise cannot be overemphasized, which include the following; Higher incomes and profit; Higher earnings; Increased supplies of both consumer and capital goods at lower costs and lower prices; Ultimate shorter hours of work and improvements in working and living conditions; Strengthening the general economic foundation of workers (Banjoko, 1996). Armstrong (2006) stated that productivity is the time spent by an employee actively participating in his/her job that he or she was hired for, in order to produce the required outcomes according to the employers' job descriptions. As suggested by Bloisi (2003) the core cause of the productivity problems in the South African society are people's motivation levels and their work ethics.

Timeliness is recognized as an important component of work performance (Downs, 2008) Timeliness is a way of developing and using processes and tools for maximum efficiency, effectiveness, and productivity (Downs, 2008) It involves mastery of a set of skills like setting goals, planning and making decisions better. At the end we have better performance (Brogan,

2010). According to Thompson et al (2010), accurate and timely information about daily operations is essential if managers are to gauge how well the strategy execution process is proceeding

Time is an essential resource since it is irrecoverable, limited and dynamic (Downs, 2008) Irrecoverable because every minute spent is gone forever, limited because only 24 hours exist in a day and dynamic because it's never static (Claessens, Roe & Rutte, 2009) According to North (2004) time management is the organization of tasks or events by first estimating how much time a task will take to be completed, when it must be completed, and then adjusting events that would interfere with its completion is reached in the appropriate amount of time. Effective time management is the key to high performance levels. Effective time management not only affects the performance of employees, but also helps to cope with stress, conflicts and pressure more efficiently North (2004).

Timeliness is a method managers used by managers to increase work performance (Claessens, Roe, Rutte 2009) Performance can be seen as the consistent ability to produce results over prolonged period of time and in a variety of assignments (Galbraith, 2007). High performance in organizations is when an organization is so excellent in so many areas that it consistently outperforms most of its competitors for extended periods of time (North, 2004) Performance can be seen as the consistent ability to produce results over prolonged period of time and in a variety of assignments (Phillips, Jory and Mogford, 2007).

Office Architectural Privacy and Employee Efficiency

Ilozor *et al.* (2002) who attempted to make the connection between the use of innovative work settings and improved organisational performance. The research was based on 102 work settings, with several null hypotheses on innovative work settings and organisational performance being tested for statistical differences using the Kruskal-Wallis H-test. In contrast to previous published research (Ilozor & Oluwoye, 1999), Ilozor et al. (2002) included a measure of the level of productivity. The study illustrates the use of innovative environments as a means of enabling greater interaction between office occupiers. This result also starts to give an indication as to the ingredients required when considering a creative and productive workplace. Ilozor et al. (2002) concluded that the physical properties of the office environments can be used to influence organisational performance. While this analysis is more developed than previous research undertaken (Ilozor and Oluwoye, 1999), it does suffer from the same main critique, which is that the data appear to be collected from facilities managers and not from the office occupiers themselves.

Based on this position, the following hypotheses are put forward:

H₀₁: There is no significant relationship between office architectural privacy and employee task accomplishment in manufacturing companies in Port Harcourt, Nigeria.

H₀₂: There is no significant relationship between office architectural privacy and employee service quality in manufacturing companies in Port Harcourt, Nigeria.

Ho₃: There is no significant relationship between office architectural privacy and employee timeliness in manufacturing companies in Port Harcourt, Nigeria.

METHODOLOGY

The study adopted the cross-sectional survey design. Primary data was generated through structured questionnaire. The population of the study was 253 employees of seven (7) selected manufacturing companies in Port Harcourt. The sample size of 154 was determined using the Taro Yamane's formula for sample size determination. The research instrument was validated through supervisor's vetting and approval while the reliability of the instrument was achieved by the use of the Cronbach Alpha coefficient with all the items scoring above 0.70. The hypotheses were tested using the Spearman's Rank Order Correlation Coefficient. The tests were carried out at a 95% confidence interval and a 0.05 level of significance.

DATA ANALYSIS AND RESULTS

Bivariate Analysis

The level of significance 0.05 was adopted as a criterion for the probability of accepting the null hypothesis in ($p > 0.05$) or rejecting the null hypothesis in ($p < 0.05$).

Relationship between Office architectural privacy and Measures of Employee Efficiency

Table 1: Correlation for office architectural privacy and measures of employee efficiency

			Architectur al Privacy	Task accomplishm ent	Service Quality	Timeliness
Spearman's rho	Architect ural Privacy	Correlation Coefficient	1.000	.566**	.478**	.690**
		Sig. (2-tailed)	.	.000	.000	.000
		N	138	138	138	138
	Task accompli shment	Correlation Coefficient	.566**	1.000	.846**	.469**
		Sig. (2-tailed)	.000	.	.000	.000
		N	138	138	138	138
	Service Quality	Correlation Coefficient	.478**	.846**	1.000	.342**
		Sig. (2-tailed)	.000	.000	.	.000
		N	138	138	138	138
	Timelines s	Correlation Coefficient	.690**	.469**	.342**	1.000
		Sig. (2-tailed)	.000	.000	.000	.
		N	138	138	138	138

****.** Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS output version 23.0

The table illustrates the test for the three previously postulated bivariate hypothetical statements. The results show that for:

Ho₁: There is no significant relationship between office architectural privacy and employee task accomplishment in manufacturing companies in Port Harcourt, Nigeria

The correlation coefficient (r) shows that there is a significant and positive relationship between office architectural privacy and employee task accomplishment. The ρ value 0.566 indicates this relationship and it is significant at $p\ 0.000 < 0.05$. The correlation coefficient represents a high correlation indicating a strong relationship. Therefore, based on empirical findings the null hypothesis earlier stated is hereby rejected and the alternate held. Thus, there is a significant relationship between office architectural privacy and employee task accomplishment in manufacturing companies in Port Harcourt, Nigeria.

Ho₂: There is no significant relationship between office architectural privacy and employee service quality in manufacturing companies in Port Harcourt, Nigeria

The correlation coefficient (r) shows that there is a significant and positive relationship between physical proximity and employee service quality. The ρ value 0.478 indicates this relationship and it is significant at $p\ 0.000 < 0.05$. The correlation coefficient represents a moderate relationship. Therefore, based on empirical findings the null hypothesis earlier stated is hereby rejected and the alternate held. Thus, there is a significant relationship between office architectural privacy and employee service quality in manufacturing companies in Port Harcourt, Nigeria.

Ho₃: There is no significant relationship between office architectural privacy and employee timeliness in manufacturing companies in Port Harcourt, Nigeria

The correlation coefficient (r) shows that there is a significant and positive relationship between office architectural privacy and employee timeliness. The ρ value 0.792 indicates this relationship and it is significant at $p\ 0.000 < 0.05$. The correlation coefficient represents a high correlation indicating a strong relationship. Therefore, based on empirical findings the null hypothesis earlier stated is hereby rejected and the alternate held. Thus, there is a significant relationship between office architectural privacy and employee timeliness in manufacturing companies in Port Harcourt, Nigeria.

DISCUSSION OF FINDINGS

The hypotheses examined the relationship between office architectural privacy and employee efficiency of manufacturing companies in Port Harcourt. The study findings reveal that there is a significant relationship between physical fittings and employee efficiency of manufacturing companies in Port Harcourt. The study finding agrees with the works of Kupritz (2003) and Sundstrom et al., (1980) that office architectural privacy influences the extent to which people are exposed to distractions and disturbances by others. The use of walls and physical barriers create higher levels of architectural privacy; while large, open office spaces with no physical

barriers separating workstations provide minimal privacy. Lower levels of office architectural privacy can lead to greater opportunity for interaction, communication and collaboration (Becker and Sims, 2001; Kim and de Dear, 2013; Stryker, 2004), all of which are valued within clan cultures (Cameron and Quinn, 2011). The current also aligns with Echaaobari, Ihunda and Adim (2018) who found that there is a significant relationship between collaboration strategy and employee performance in oil producing companies in Port Harcourt, Nigeria.

However, clan cultures also value relationships (Cameron and Quinn, 2011) and low levels of office architectural privacy can also lead to undesirable outcomes such as distractions and blurring of psychological boundaries (Sundstrom et al., 1980). While low levels of office architectural privacy can have both positive and negative effects (Becker and Sims, 2001; Kim and de Dear, 2013; Stryker, 2004; Sundstrom et al., 1980), other research (Kupritz, 2005) suggest that the effect of office architectural privacy levels may be dependent on other factors. Kupritz (2005), for example, found that individuals weighted office architectural privacy differently depending on their job type. Offices with walls and a door were found to minimise distractions for business professionals, managers and technical professionals, but not for administration support services. Office architectural privacy may also be perceived differently depending on the extent to which human interactions (such as communication and collaboration) are valued within the workplace.

CONCLUSION

Based on the findings, the study affirms that optimal solution would require complete knowledge of all office layout circumstances now and of the future, and that the encouragements of good office layout attitude on the organization will allow employee to be more engaged on their job. These can make employees to be more dedicated, absorbed and show high level of vigor on their job, which in turn can increase productivity and enhance profit making. This study thus concludes that office layout significantly influences employee efficiency of manufacturing companies in Port Harcourt.

Recommendations

The following specific recommendations are made based on the findings of this study:

- i. Manufacturing companies should solve workplace design problems and provide employees with comfortable, attractive workplace that support employee satisfaction and well-being.
- ii. Manufacturing companies should provide sufficient and flexible furniture supported by suitable height panels to facilitate communication as well as visual and acoustical privacy.
- iii. Manufacturing companies should provide for semi closed plan for the administration building spaces through the integration of small offices into large one and the using of transparent partitions and systems furniture to separate between spaces to

provide visual expansiveness, natural lighting and fresh air to reach all of the interior spaces.

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