
Exploring Influential Workplace Environment Factors that Cause Employees Performance and Productivity

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KEYWORD

Physical environment factors, Performance, Productivity, workspace and quantitative analysis.

ABSTRACT

The main aim of this research was to investigate the relationship between the physical conditions of the workplace and the productivity of employees. The study takes a quantitative approach, which means it focuses on understanding the underlying reasons, opinions, and experiences related to the topic. To reach to the fact the data was collected through a questionnaire from 45 employees working in an office environment in Islamabad, Pakistan. This method allows the researchers to gather insights directly from the employees about their experiences with the workplace environment and its impact on their productivity. The finding of the study demonstrated that a vivid relationship was there according to the responses of the employees between the workplace and productivity of the employees. This implies that when employees are content and comfortable with their work environment, it may lead to increased productivity levels. The expected outcomes will highlight the significance of the office environment in shaping employee productivity, as well as emphasize the role of physical environment in contributing to overall productivity.

INTRODUCTION

Individuals are extremely glad to have work, yet a large number of them never gain a feel that their working environment is a subsequent home, although a lot of their time is spent at workplace. This frequently drives them to feel compelled to accommodate with the awkward climate. In an employee's working environment climate is a vital determinant for the quality of their work and the degree of efficiency. It has been concluded that the employee's performance is linked with the level of satisfaction in his/her surround. This directly influences performance and ultimately the organizational productivity (Zhenjing et al, 2022). It has been assumed by human resource management that employees are the asset of an organization and better performances can be achieved through the employees of the organization., for which, good working environment in which physical and behavioral aspects are both paramount (Berberoglu, 2018). And for their motivation, hardworking, engagement, creativeness and willingness both factors (physical and behavioral) are causal for their better performances (Meng & Berger, 2019).

All those include and will be fulfilled by providing them a physically comfortable and stimulating working environment, fostering their relationships and communication, and adopting effective leadership styles. It means that the quality of the job environment plays a significant role in determining an employee's skills and motivation to excel in the job. In a scenario of progressive organizations; the good HR is required

to enhance productivity. Investigators have shown that the principal objective of work for somebody isn't just to get the compensation, however to arrive at conceit (Suwati, Minarsih & Gagah, 2016). Employee enactment is impacted by a number of factors, for example, physical environment, stimulation and leadership style. Unfortunately, poor workplaces delivery and lack of authority's interest and poor management leads to lack of employees' interest, increased absenteeism and poor performance with overall decreased productivity.

Research Problem

Numerous associations have been working on new plans and methods to develop places of business, which has enhanced efficiency of employees. It has been noticed that work environment has a vital role in productivity enhancement. The aim of this research is to investigate the dimensions of work place environment and its impact on worker's productivity.

Research Objectives

The objectives of this research are:

- a) To know and report the employees' experiences regarding different physical environmental factors those are essential for their productivity.
- b) To highlight influential physical environmental factors that affect employees' performance on different tasks.

Significance of the research study

Now a days, many businesses and organizations are using interior designing in offices to enhance the workspace environment, leading to improved productivity and employee retention. Researchers have found that workplace environment factors play a significant role in increasing and maintaining employee performance and organizational productivity. This research will be a good research document for Pak Navy and other Gov't and private organization for the purpose of improving employees' performance.

Research Hypothesis/Research Questions

The research questions of this study were set as:

1. Physical environmental factors have no relationship with employees' performance.
2. Physical environmental factors do not affect the employees' performance regarding completion of a particular task.
3. Physical environment factors do not affect the absenteeism of the employees.
4. Physical environment factors do not affect margin of error of the employees.
5. Physical environment factors do not affect the proficiency of the employees.

LITERATURE REVIEW

Workplace importance and its impact on employees' performance

Establishing and creating sustainable workplace environment is a global trend aimed at increasing positive impacts on employees (Labib et al., 2022). An environmental or physical environmental factor in terms of their impact on the individual and for the productivity of an organization is important and highly linked with each other. Specifically regarding the workplace, Awan (2015) defined it as the atmosphere within which work is conducted to achieve established goals. The workplace environment has a significant effect on either increasing or reducing employee efficiency. The same is reported by Al-Omari and Okashe (2017) that workplace significantly influences employee productivity. To make sense of, the workplace is extremely crucial for the employees and impacts a few regions like performance, serenity,

social relations, and health. Likewise, the researchers have recorded five factors that go under actual climate which are air, temperature, sound, light and space. What's more, a review was done by Awan (2015), he found that those managers who can settle and change these components of the workplace, ultimately they can expand efficiency of the workers.

The resultant performance of an organization is the collective efforts of the employees, and their resultant performances are not static and consistent over time (Huselid, 1995; Bin Dost, Shafi & Shaheen, 2011). Their performances are varies and variation in their performance are due to so many factors. Productivity and employees performances are directly link with each other (Solomon, Hashim, Mehdi & Ajabe, 2012). The physical environmental factors encompass both external and internal that surrounds employees within the organization. This means that the performance of the employees is their productivity (Rehman et al., 2018., Al-Omari et al., 2017).

The physical environment is crucial for their motivation, productivity and collaboration (Tabassum et al., 2021). In today's competitive job market, a collaborative and positive work environment is important for retaining and attracting talented employees. Another, factors such as productivity, engagement and comfort are linked to the workplace environment and definitely impact employee error rates, proficiency, collaboration and absenteeism. That's why HR managers should devise particular strategies to select and retain top talents by considering both compensation and quality of environment (Yeh & Huan, 2017).

While, conducive physical environments are essential for the performance of the employees and end results, numerous organizations experience inappropriate working environment and conditions that lack safety and comfort. Among the issues poor lighting, proper ventilation, polluted air and uncomforted workplace environment may lead to reduced performance and occupational health problem. Unfavorable conditions no doubt result in increased absenteeism and turnover rates. Environmental and physical factors are challenges for so many organizations. Due to which employees' disengagement is growing. Both factors highly impact the performance and productivity of employees and also cause distraction, lack of interest and high absenteeism (Pech & Slade, 2006).

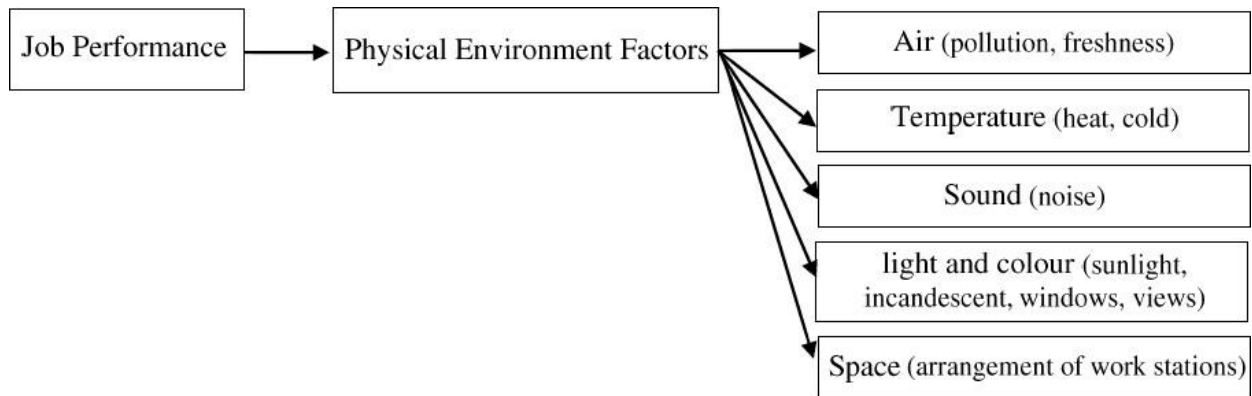


Figure 1: Physical Environment Factors that affect the worker (Al-Omari & Okasheh, 2017)

According to Massoudi (2017), the work place encompasses the geographical location and immediate surroundings of the working environment, including factors such as air quality, control temperature, lightning, appropriate noise and additional amenities like ample parking and unlimited coffee.

Impact of Indoor Air Quality

In work place environment, every physical factor has its own significant effect on the performance of the each and every individual employee. Likewise, in case of air, it may comprise of pollutant and contamination or it can be clean. The nature of indoor air directly affects wellbeing, comfort, and job performance. Employees sometimes spent around 90% of their time at their workplace which makes the air a significant factor. There are a few indoor toxins like radon, asbestos, inorganic material, smoke, and organics and these could make a terrible feeling and inconvenience to employees by impacting their efficiency, health and professional performance adversely (Roh et al., 2021). Health is the main pre-

requisite human performance for which a health environment is necessary. A study revealed that air pollution links to diabetes and unhealthy air causes mental, cardiovascular, respiratory and perinatal issues (Manisalidis et al., 2020).

Impact of indoor Temperature

On the same construct, the temperature variable plays a vital role in rising efficiency and reducing stress and temperature is referred as degree of hotness and coldness of surroundings. For a particular model, high temperature makes employee’s performance low in job that requires mental, physical, and perceptual responsibilities. Moreover, high temperature is health hazardous as it harms the wellbeing and aggravates burden and exhaustion. Added to that, the temperature comfort level might vary from one individual to the other, for example, a thin individual may desire higher temperature (Vimalanathan & Ramesh Babu, 2014). The accompanying figure makes sense of the impact of temperature on efficiency.

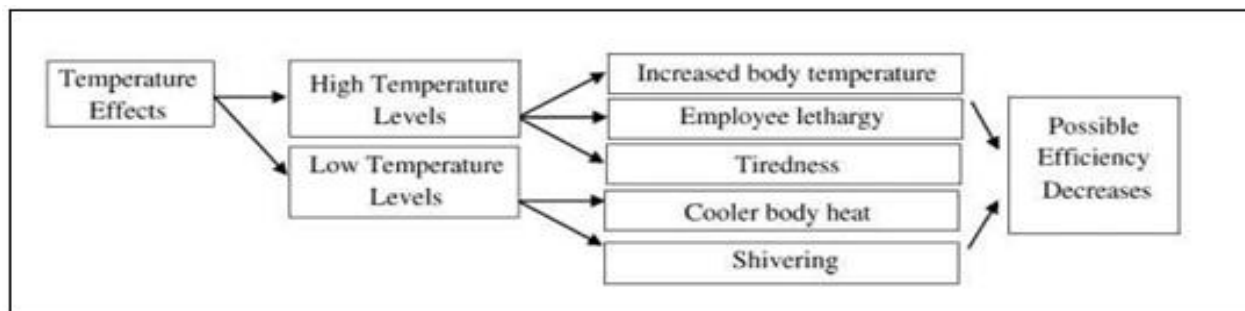


Figure 2: Temperature effect diagram

Impact of Sound on Employees’ Performance

Concerning the third element which is sound and it incorporates noise. Noise is characterized as the

sound that is undesirable. To make sense of, noise level can profoundly influence the work execution quality. The maximum level of Noise above 70

dB over a prolonged period of time may start to damage hearing. Loud noise above 120 dB can cause immediate harm to ears NIOSH Science Blog (Kardous et al., 2016). Maintaining the noise level up to 60dB is crucial to maintain the human comfort. The sources of noise are different like from employees, machines, printers, keyboards, and many other sources. The research of the Sepehri et al., (2019) concluded that noise variable has a greater effect in comparison with temperature variable on the cognitive performance of the employees.

Impact of Noise

Researchers suggested that noisy workplace environments have an influential impact on employees' productivity and end result performance. Improper noise level particularly in complex assignments can lead to various health problems such as endocrine and cardiovascular problems. Under one roof workplace designs producing collaboration and teamwork but on other side some study revealed that it caused in increase workplace noise (Melamed, Fried & Froom, 2001). The result of this noise negatively affects the performance of the workers, and it particularly affects those who are mainly involved in reading comprehension and cognitive task etc. Noise from conversations and other office equipment distracts employees, especially when they lack control over the noise and it is unpredictable. In this office equipment, computers, phones, HVAC and printers contribute to elevate the level of noise. In addition, the most disturbance noise sources identified include arrivals and departures of individuals, ventilation equipment, keyboard sounds and sound of printers (Kjelberg & Skoldstrom, 1991., Mital, McGlothlin, & Faard 1992).

Impact of Light on employees' Productivity and performance

Light and color factors include sunlight, incandescent, windows, and views. The most essential element within the work place is natural day light. There's a powerful connection between the great quality of employee's life and productivity for which natural day light is indispensable in colder regions however in hotter regions preferences may differ. Organizations must take in consideration the kind of job and design of lighting arrangement accordingly. For instance the jobs are to be characterized as indoor and outdoor, and time of the day etc. Proper lighting helps in increasing the employee's productivity. Also, the

inappropriate lighting is taken into account as a source of stress and discomfort which can directly influence the productivity. For example too much light can cause glare and low light can increase stress on eyes. Also there's a robust connection between the brightness of the work place and alertness, productivity, concentration on tasks, and temperament. It has been observed that colors also have important role if they're chosen appropriately, for example, cool colors have the unhappy and depressive impact. On other hand, warm colors could provide a warm sense and motivate the staff. Lightning should be dynamic and it must be according to the need of the workers for optimum result (Preto & Gomes, 2019).

Impact of Space on Employees' Performance and efficiency

Space is extremely vital for enhancing the efficiency of employees. Space is intended for the smooth working environment. Nowadays organizations are planning their work place such that places are open to one another. This style impacts expanding and helping the correspondence. Additionally, this plan could emphatically affect the efficiency of certain workers in certain associations. Notwithstanding, this plan could make the spot swarmed and confined which will raise the fuss and tension of workers because of the inconvenient plan. Likewise, it might have vibes of lacking of opportunity which will influence their efficiency and focus (Osborne & Hammoud, 2017).

RESEARCH METHODOLOGY

This research depends on quantitative approach based on data acquired through a survey pertaining to a questioner in order to test the hypotheses. In the first section demographic information were gathered from the 45 employees who answer the questionnaire. Their gender, age, education profile and seniority were asked in the first 4 questions. In the second section, employees responses regarding 5 different physical environmental factors for which a well construct questionnaire of 35 items were collected and analyzed through SPSS-22.

Population of the research study

Pakistan navy engineering department HQ QW & CE (NAVY). Head Quarter Director works & Chief Engineer Office pertaining to architecture, engineering and quantity surveying departments. All their staff and ostensible command works under one roof.

Sample of the study

Purposive sample consist of 45 employees was used for this research study.

Research tool

A researcher made questionnaire was used for data collection. The research tool consists of five different categories and for each category the researcher selected and prepared 7 questions for each. Through these items the researcher investigated the work experiences of the 45 employees.

Reliability and validity of the tool

Table 1: Reliability and validity of the tool

Variables	Items	Cronbach's Alpha
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(Pilot study)		
Temperature	7	0.77
Noise	7	0.78
Light	7	0.81
Appropriate Air	7	0.85
Workspace	7	0.75

For the reliability of this tool the cronbach' Alpha was used. This statistics is used to estimate the internal consistency of the items. As all the values are above .6, so the tool is reliable. Further for the validity the tool was checked by 5 researchers. The validity was good and it is an appropriate tool to measure the construct of the research.

Independent and dependent variables

Table 2: Independent and dependent variables

S.No	Ind. variables	Level of Ind. variables	Dep. Variables
1	Temperature	1: Controlled	1: Good Performance with less margin of error (Less Absenteeism)
		2: Uncontrolled	2: Relatively low performance with mistake (High absenteeism)
2	Noise	1: Controlled Noise up to 60db	1: Good Performance with less distractions are reported (Less Absenteeism)
		2: Uncontrolled Noise	2: Low performance with mistakes d chaos (High Absenteeism)
3	Light	1: Proper Lumens	1: Good Performance with less errors and speedy completion (Less Absenteeism)
		2: Improper Lumens (Low or High)	2: Bad performance with mistakes (High Absenteeism)
4	Appropriate Air	1: Clean and odorless Air	1: Good Performance with less margin of error(Less Absenteeism)
		2: Polluted air	2: Relatively Low performance with mistakes (High Absenteeism)
5	Workspace	1: Appropriate Space	1: Good Performance with less margin of error(Less Absenteeism)
		2: Inappropriate space	2: Relatively Low performance with mistakes (High Absenteeism)

Response analyses

This section briefly discusses the survey results. The first section of the survey searches the demographic information on the survey attendees.

Primary data

Demographic Information

Table 3: Gender Age and Service duration Information of the 45 Selective Sample data

Gender Size	Frequency	%
Male	44	97.77
Female	1	2.23
Total	45	100%
Age	Frequency	%
Less than 20	2	4.44
20-30	6	13.33
30-40	24	53.33
40 & Above	13	28.89
Total:	45	100%
Work Seniority	Frequency	%
Up to 10 Years	32	97.77
20 Years and Above	13	2.23
Total	45	100%

Table 4: Temperature aspect responses

Statements	High	Medium	Low
Q1 When the temperature is controlled then your performance	45	0	0
Q2 When the temperature is controlled then your perfection of task in comparison to your margin of error	45	0	0
Q3 When the temperature is controlled then your level attention in comparison to absenteeism	45	0	0
Q4 When the temperature is uncontrolled then your performance	0	0	45
Q5 When the temperature is uncontrolled then your perfection of task in comparison to your margin of error	0	0	45
Q6 When the temperature is controlled then your level attention in comparison to absenteeism	0	0	45

The table 3 showed that employees’ responses are totally towards high category. Controlled temperature

has greatly affected the performance and uncontrolled temperature has worse impact on the

performance of the employees. Somanathan et al. (2021) also revealed in his research study that for

even one degree increase from the normal decrease the performance and productivity of the employees.

Table 5: Noise aspects responses

Statements	High	Medium	Low
Q8 When the Noise is controlled up to 60 db then your performance	45	0	0
Q9 When the Noise is controlled up to 60 db then your attention in comparison to distraction level	45	0	0
Q10 When the Noise is controlled up to 60 db then your attention in comparison to absenteeism	45	0	0
Q11 When the Noise is uncontrolled then your performance	0	0	45
Q12 When the Noise is uncontrolled then your perfection of task in comparison to distraction level	0	7	38
Q13 When the Noise is uncontrolled then your level of attention in comparison to absenteeism	0	0	45

The table 4 showed that employees’ responses are totally towards high category. Controlled noise has greatly affected the performance and uncontrolled noise has impact from medium to low on the performance of the employees. The result also endorsed the result of the study that treble noise

significantly reduces human performance. Moreover, intermittent noise, particularly at high pressure levels, worsens environmental conditions while performing tasks. In short, both treble and intermittent noise negatively impact task performance and overall working conditions (Nassiri et al., 2013).

Table 6: Light aspect responses

Statements	High	Medium	Low
Q15 Proper lumens in the environment then your performance	45	0	0
Q16 Proper lumens in the environment increase my proficiency in task completion	45	0	0
Q17 Proper lumens in the environment then your level of attention in comparison to the absenteeism in the task	45	0	0
Q18 Improper lumens(high or low lightning) in the environment then your performance	0	4	41
Q19 Improper lumens in the environment increase my proficiency in task completion	0	4	41
Q20 Improper lumens in the environment increase my level of attention in comparison to absenteeism in task	0	3	42

The table 5 showed that employees’ responses are totally towards high category. Controlled light has greatly affected the performance and uncontrolled light has impact from medium to low on the performance of the employees. It must be noted that employees whose job involves reading can face

serious issues such as eyestrain, headaches, irritability, and fatigue due to inadequate or poor lighting systems in the organization. So, to improve the employees’ productivity proper installation of lightning is integral (Sarode & Shirsath, 2014).

Table 7: Air aspects responses

Statements	High	Medium	Low
Q22 When the air is Clean and odorless then your performance	45	0	0
Q23 When the air is Clean and odorless then your Perfection in task in comparison to margin of error	45	0	0
Q24 When the air is Clean and odorless then then level of attention in comparison to absenteeism	45	0	0
Q25 When the air is pollute then your performance	0	1	44
Q26 When the air is pollute your Perfection in task in comparison to margin of error	0	8	37
Q27 When the air is pollute then my level of attention in comparison to absenteeism	0	2	43

The table 6 showed that employees' responses are totally towards high category. Almost 100% responses are in favor of clean and odorless environment. Clean and odorless air has greatly

affected the performance and polluted air has impact from medium to low on the performance of the employees.

Table 8: Workspace aspect responses

Statements	High	Medium	Low
Q29 When the work space is appropriate then your performance	45	0	0
Q30 When the work space is appropriate then your perfection in task in comparison to margin of error	45	0	0
Q31 When the work space is appropriate then your attention in comparison to absenteeism	45	0	0
Q32 When the work space is inappropriate then your performance	0	0	45
Q33 When the workspace is inappropriate then your perfection in task in comparison to margin of error	0	0	45
Q34 When the work space is inappropriate then my level attention in comparison to absenteeism	0	0	45

The table7 showed that 45 employees' responses are totally towards high category. Proper workspace has greatly affected the performance and inappropriate has worse impact on the performance of the employees. This research also supported the result of the research study conducted by Nadeem and Ahmad (2017). The study also revealed that positive physical environment positive affected the productivity of the employees.

Table 9: Five aspects responses regarding productivity

Statements	Extremel y	Moderatel y	Not at all
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Q7	Does variation in temperature affect your performance?	45	0	0
Q14	Does variation in noise affect your performance?	40	5	0
Q21	Does light variation in the environment affect your performance?	0	5	40
Q28	Does variation in air affect your performance?	0	2	43
Q35	Does a difference in workspace affect your performance?	45	0	0

Table 8 clearly depicted that all the five physical environments affect the performances of the employees. The study examined the influence of the physical workspace environment on employee performance (Name the place of the sample). The findings indicated that various physical environment factors, such as air quality, temperature level, noise condition, lighting, and workstation arrangement, significantly affect both employee performance and their desire to leave the job. A positive physical environment leads to improved employee performance and reduced turnover intention, while a negative physical environment has the opposite effect, decreasing performance and increasing the intention of the employees to leave the job.

CONCLUSION

The connection between job performance and various factors that influence it are so many. Out of those five are the most paramount. These aspects collectively impact a worker's effectiveness and output in their job. It has been concluded that the work environment, including factors like temperature, noise, light, appropriate air and workspace as significant contributors to job performance. It suggests that employers should focus on improving these physical conditions to motivate employees and enhance their job performance, leading to increased satisfaction for both employees and employers. The study showed that a conducive and healthy work environment is crucial for optimal employee productivity and that investing in a proper working environment is more beneficial than saving money on neglecting these factors. The study concluded that any cost savings achieved by not providing essential amenities such as air conditioning, proper lighting, and noise control are far outweighed by the negative impact on employee performance due to unfavorable working conditions. Therefore, this research recommends

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ensuring a proper working environment to optimize worker's performance, suggesting that investing in employee well-being and work conditions is more beneficial than cost-cutting measures. All the hypotheses were discovered and conclusions were made that environmental factors have the influential role in the performance and productivity of the employees.

Recommendations

The following recommendations are suggested for better performances and productivity:

1. This research highlighted that the physical work environment has a great connection with overall employee performance and result found that a strong relationship exists between them. However, it can still be optimized to increase employee's satisfaction and enjoyment at work. So, healthy environment should be provided to the workplace for getting better and productive results.
2. This research suggested that the employer should provide adjustable and flexible work environment for the purpose to enhance worker comfort, and ultimately improve employees' productivity. Customizing workplace environment benefit should be highlighted to achieve the organization/ mission and vision.
3. Productivity and for long term sustainable performances, it is essential for managers to maintain and regulate indoor environmental quality, eliminate unnecessary indoor pollution sources, proper ventilation and the environment should be adjusted according to the need of the employees.

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Primary Data

Name : _____

Age: _____

Gender: _____

Education: _____

Rank: _____

Service Seniority: _____

Secondary Data

		Response		
Q1	When the temperature is controlled then your performance	High	Medium	Lower
Q2	When the temperature is controlled then your perfection of task in comparison to your margin of error	High	Medium	Lower
Q3	When the temperature is controlled then your level attention in comparison to absenteeism	High	Medium	Lower
Q4	When the temperature is uncontrolled then your performance	High	Medium	Lower
Q5	When the temperature is uncontrolled then your perfection of task in comparison to your margin of error	High	Medium	Lower
Q6	When the temperature is controlled then your level attention in comparison to absenteeism	High	Medium	Lower
Q7	Does variation in temperature affect your performance?	Extremely	Moderately	Not at all
Q8	When the Noise is controlled up to 60 dB then your performance	High	Medium	Lower
Q9	When the Noise is controlled up to 60 dB then your attention in comparison to distraction level	High	Medium	Lower
Q10	When the Noise is controlled up to 60 dB then your attention in comparison to absenteeism	High	Medium	Lower
Q11	When the Noise is uncontrolled then your performance	High	Medium	Lower
Q12	When the Noise is uncontrolled then your perfection of task in comparison to distraction level	High	Medium	Lower
Q13	When the Noise is uncontrolled then your level of attention in comparison to absenteeism	High	Medium	Lower
Q14	Does variation in noise affect your performance?	Extremely	Moderately	Not at all

Q15	Proper lumens in the environment then your performance	High	Medium	Lower
Q16	Proper lumens in the environment increase my proficiency in task completion	High	Medium	Lower
Q17	Proper lumens in the environment then your level of attention in comparison to the absenteeism in the task	High	Medium	Lower
Q18	Improper lumens (high or low lightning) in the environment then your performance	High	Medium	Lower
Q19	Improper lumens in the environment increase my proficiency in task completion	High	Medium	Lower
Q20	Improper lumens in the environment increase my level of attention in comparison to absenteeism in task	High	Medium	Lower
Q21	Does light variation in the environment affect your performance?	Extremely	Moderately	Not at all
Q22	When the air is Clean and odorless then your performance	High	Medium	Lower
Q23	When the air is Clean and odorless then your Perfection in task in comparison to margin of error	High	Medium	Lower
Q24	When the air is Clean and odorless then then level of attention in comparison to absenteeism	High	Medium	Lower
Q25	When the air is polluted then your performance	High	Medium	Lower
Q26	When the air is polluting your Perfection in task in comparison to margin of error	High	Medium	Lower
Q27	When the air is polluted then my level of attention in comparison to absenteeism	High	Medium	Lower
Q28	Does variation in air affect your performance?	Extremely	Moderately	Not at all
Q29	When the work space is appropriate then your performance	High	Medium	Lower
Q30	When the work space is appropriate then your perfection in task in comparison to margin of error	High	Medium	Lower
Q31	When the work space is appropriate then your attention in comparison to absenteeism	High	Medium	Lower
Q32	When the work space is inappropriate then your performance	High	Medium	Lower
Q33	When the workspace is inappropriate then your perfection in task in comparison to margin of error	High	Medium	Lower
Q34	When the work space is inappropriate then my level attention in comparison to absenteeism	High	Medium	Lower
Q35	Does a difference in workspace affect your performance?	Extremely	Moderately	Not at all
