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Office Environment and Workers' Productivity: Empirical Evidence of Government Workers in Kota Belud, Sabah, Malaysia

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ABSTRACT

Office environment and its relationship with worker productivity is an area of interest for office administrators to set up an office. While most studies proved that there was a significant correlation between the two variables, others presented inconclusive findings. This study explored the relationship between office environment and productivity among the government workers in Kota Belud, Sabah. It focused on four variables of office environment which include furniture, temperature, noise, and lighting. The population of this study are employees in a government institution in Kota Belud, Sabah. This quantitative study employed questionnaire distribution to 115 government employees through convenience sampling method. The findings indicated that the government workers in Kota Belud agreed that office environment does affect their work productivity. All variables of office environment were significant and positively correlated with workers' productivity. Furthermore, the research reflected that these workers would pay more attention to the quality of office environment aspects for better workers' productivity and job performance.

Keywords: *Office Environment; Productivity; Furniture; Temperature; Noise; Lighting*

1.0 INTRODUCTION

In the increasingly competitive global business environment, organisations are compelled to invest in capacity development generally to improve workers' productivity, innovativeness, and competitiveness. Productivity is the ratio of outputs to inputs. It refers to the volume of output produced from a given volume of inputs or resources. If the workers are more productive, then the organisation is more efficient since productivity is an efficiency measure (Samnani, 2014). A study conducted by Chiang (2018) in Hong Kong mentioned that to meet the standard of organization, employees need a pleasant working environment that allows them to work freely without any problems that may restrain them from performing up to the level of their full potential. Thus, those employees that experience bad working environment show a decrease in productivity and also experience failures. The physical

environment comfort which includes office design and layout, indoor air quality, thermal condition, lighting, and noise will affect the performance and productivity of the employees (Ali., 2016). A pleasant work environment can contribute to the organization's benefits and also to the employees. Essential factors in the work environment that should be considered include building design and age, workplace layout, workstation set-up, furniture and equipment design and quality, space, temperature, ventilation, lighting, noise, vibration, radiation as well as air quality (Sarode, 2014). Palvalin, Van der Voordt, and Jylhä (2017) listed workplace ergonomics, high indoor air quality, high-quality lighting, natural daylight, temperature and air quality as important workplace characteristics that support productivity.

This study is in accordance with Maslow's Hierarchy of Needs Theory (Maslow, 1943). As the theory describes, the needs are arranged in a hierarchical order of importance, namely physiological, safety, social, esteem and self-actualisation needs. Physiological needs are biological requirements for human survival such as air, food, drink, shelter, clothing, warmth and sleep. If these needs are not satisfied the human body cannot function optimally. Maslow considered physiological need the most important as all the other needs become secondary until these needs are met. Safety needs is the need for protection from elements, security, order, laws, stability and freedom of fear. After physiological and saftey needs have been fulfilled, the third level of human needs is social and involves feelings of belonging. The need for interpersonal relationships motivates behavior which include friendship, intimacy, trust, acceptance, receiving and giving affection and love as well as affiliating, or being part of a group (family, friends, work). The fourth level of human needs is the esteem needs - which Maslow classified into two categories: (i) esteem for oneself (dignity, achievement, mastery, independence) and (ii) the desire for reputation or respect from others (e.g., status, prestige). Maslow indicated that the need for respect or reputation is most important for children and adolescents and precedes real self-esteem or dignity. Finally, the fifth needs is the self-actualization needs - realizing personal potential, self fulfillment, seeking personal growth and peak experiences. This study referred to the basic needs which are physiological needs and safety needs in the hierarchy level of the theory. According to a study by Aruma and Hanachor (2017), physiological needs also include comfort, rest or sleep, reproduction or procreation. Low (2018) emphasised that employees should be provided with a healthy work environment that is a place of higher standards of hygiene for the workers to breathe clean, fresh air and to have a suitable temperature, ergonomic furniture, sufficient light source, and effective control of noise. Maslow stated higher level needs will be satisfied when the lower needs are satisfied. Therefore, the social needs, esteem needs and self-actualization needs can only be satisfied when physiological needs and safety needs were satisfied.

The objective of this study is to investigate the relationship between office environments and employee's productivity among government workers at Kota Belud, Sabah. The majority of the study in this field was done in many countries such as Greece (Nikolaos, 2015), Malaysia (Azlan Shah, 2015), United Kingdom (Haynes, 2014), Pakistan (Sultan, 2016) and Nigeria (Shimawua, 2017). This research is conducted due to the limited research done in Malaysia, especially in Borneo. A study was done by Abd Hamid and Hassan (2015 in Selangor, which found that office environments element such as lighting, temperature, noise, and furniture are positively related to employee productivity. Ali, Chua, and Lim (2019) conducted the same study in public university in Malaysia and found that the overall physical environment have an effect on the employees' health that lead to absenteeism rate. In another study conducted by Shinshegar and Boubekri (2016) in United State concluded that noise and lighting are significantly related to employees productivity. There was also research done in India (Mathews, 2016) which found that all the essential characteristics of an office environment (lighting, noise, temperature, furniture) are significantly interrelated. Furthermore, this research is also conducted because there is the inconsistency of the result and findings. A review done by Schilleci (2022) found that the trend in this topic was mainly related to lighting, noise and privacy regardless of the work environment setting which omits the relation between the physical work environment and service employees' outcomes. The outcome of the office environment conducted by Al-Omari and Okasheh (2017) done in Nigeria shows that good quality lighting system, suitable office furniture, and good control of noise are related to employees' productivity but the inconsistent result also concludes that temperature factor has no noticeable impact on employees' productivity. There are many studies which

habe been conducted in Peninsular Malaysia but only a few in Borneo especially in Kota Belud, Sabah. Therefore, this study focuses on the relationship between office environment and employees' productivity among government workers at Kota Belud, Sabah. Therefore, the following research objectives and research questions were developed:

1.1 Research Objectives

The research objectives in this study are:

RO1: To study the relationship between office environment and workers' productivity among government workers in Kota Belud, Sabah.

RO2: There is a relationship between office lighting and workers' productivity among government workers in Kota Belud, Sabah.

RO3: There is a relationship between office temperature and workers' productivity among government workers in Kota Belud, Sabah.

RO4: There is a relationship between office noise and workers' productivity among government workers in Kota Belud, Sabah.

RO5: There is a relationship between office furniture and workers' productivity among government workers in Kota Belud, Sabah.

1.2 Research Questions

There are four (4) research questions in this study:

RQ1: Is there a relationship between office environment and workers' productivity among government workers in Kota Belud, Sabah?

RQ2: Is there any relationship between office lighting and workers' productivity among government workers in Kota Belud, Sabah?

RQ3: Is there any relationship between office temperature and workers' productivity among government workers in Kota Belud, Sabah?

RQ4: Is there any relationship between office noise and workers' productivity among government workers in Kota Belud, Sabah?

RQ5: Is there any relationship between office furniture and workers' productivity among government workers in Kota Belud, Sabah?

1.3 Significance of the Study

The findings of this study would assist both the organizations and employees.

Organizations:

It would help support the management to recognize the relevant elements of the office environment to create and design a better environment such as lighting, noise, and temperature. Besides, the organization that has a better office environment will help keep good employees and encourage the employees' overall productivity.

Employees:

This improvement in an office environment will help to boost the employee's productivity and increase their job satisfaction. It helps to decrease the negative impact of office environment among employees and increase their overall wellbeing.

1.4 Limitations of the Study

The purpose of this study was to investigate the relationship between office environments and employee productivity among government workers in Kota Belud, Sabah. This study targets employees that work in government sector in Kota Belud, Sabah. The study adopts the quantitative measure whereby it uses questionnaire as the only mean to collect data. Besides, it is also limited to the four aspects of the office environment, which are; lighting, noise, temperature, and furniture.

2.0 LITERATURE REVIEW

The office environment factors included in this study were:

2.1 Furniture

Office furniture is one of the elements that is included in the physical office environment. The furniture in the office consists of workspace areas such as desks, chairs, drawers, filing space and other equipment. Office furniture also play a role in employees' performance, which, based on a research by Rantanen (2013), agrees that if the furniture is uncomfortable and not user-friendly, the employees' working style, efficiency and health are affected. It shows that the choice of workplace furniture is essential because an employee needs them to function effectively in the office. Chairs, desks, shelves, drawers and etc, all are included in office furniture, and all of these are responsible for the increase and decrease of an employee's productivity as well as organizational functioning (Naharuddin & Sadegi, 2013). The author also stated that one of the most critical issues with the purchase of office furniture is their ergonomics, and it is essential as employees have to use them throughout the time that they are in the office (Saha, 2016). Selecting office equipment and furniture requires considerable attention. The physical layout of an office is highly relevant when it comes to maximising productivity among workers. Mazubane (2016) specified that every organisation has to ensure that work stations are designed and maintained to a satisfactory degree to reduce injuries and to eliminate potential hazards typically associated with workplace. The study further described that the workers need to have an adjustable office swivel chair with a proper workstation setup when seated. The researcher concluded that ergonomic furniture has a positive influence on worker productivity. Vaidya (2020) stated that the flexibility of the office furniture should be a tool that responds to different tasks in office work. The study further described that the goal is to improve the usage of the office layout while maintaining the ease and flexibility of communication it provides. Vischer and Wifi (2016) reiterated that the element of physical comfort in office furniture supports employees in being able to perform their tasks better, hence improving productivity.

2.2 Noise

The noise level in an office is another environmental factor that must be considered. Noise is the unwanted and unpleasant sound that usually disrupts the activity or balance of human health. When noise reaches an unacceptable level, various hazardous physical and psychological effects can occur. Saha (2016) claimed that noisy environments tend to only get worse over time because people start speaking louder as it gets more boisterous around them. The researcher indicated that lesser productivity, irritation, and increase in stress level, are all outcomes of a higher level of unpleasant noise. Whether it is a ringing fax machine or co-workers who seem to raise the volume of voice every time they talk on the phone, continual disruption can cause a downturn in productivity. Continuous interruptions can lead to an inability to focus, which subsequently will result in an increased stress level. The quality of work through the area could suffer, and workers may have difficulty talking with clients and customers on the telephone. Based on the study done by Pindek et al. (2019), besides irritation, undesirable behaviour and physical health deterioration, noisy conditions at work also have a more long-term indirect effect on job performance via decreased motivation and increased workload. Halin et al. (2014) stated that noise such as speech and conversation in office environments produce annoyance and productivity-related disruption. The study further described that noise shows detrimental effects on certain task performance such as proofreading and text-typing. Noise hearing loss had been listed as the most attention disease worldwide, and it can cause physiological and

psychological dysfunction (Yuen, 2014). Noises create tinnitus and psychologically adverse effects on human beings. The research conducted by Naharuddin and Sadegi (2013) done in the mid-nineties indicated that employees who are disturbed by the workplace environment always seem to be complaining about the discomfort and lack satisfaction due to the workplace environment. Some of the common factors which can cause this discomfort and lack of satisfaction are the effect of lighting, ventilation and noise. Appel-Meuluenbroek, Groenan and Janssen (2011) mentioned that typical office tasks are negatively influenced by various categories of office noise, which has a negative effect on productivity. Appel-Meulenbroek, Steps, Wenmaekers and Arentze (2021) iwho nvestigated the coping strategies for noise reduction found that the employees' personal differences do not appear to be related to the perception on noise sources but do show differences in coping behavior. In a study conducted by Rasheed, Khoskbakt and Baird (2020) which involved 5,000 office employees in New Zealand, they found that noise influence both comfort and productivity in all the office spaces.

2.3 Temperature

As reported in Climatestotravel.com (2013), Malaysia is situated north of the equator, and the climate is hot, humid, and rainy throughout the year, while the average temperature is high but stable. The significance of controlling the temperature in the office is to ensure the comforts of the workers. A slight change to the temperature in the office may affect the worker's productivity as well as their work performance. The temperature can be distinguished by determining the humidity of the air. When the air is too humid, it will cause people to sweat, which can induce heat exhaustion and make one feel oppressive. In contrast, low humidity can make the air feel colder than it is which is also problematic and can cause skin, throat, and nasal passages to feel dry and uncomfortable (Massoudi & Hamdi, 2013). According to Ali et al. (2019), numerous studies have been conducted to study the impact of physical comfort which includes the office air temperature, on an employee's job satisfaction, performance, and health. Munira and Mohammad (2013) postulated that there will be an increase of 5 to 10 per cent of an employee's performance depending on the improvement and upgrading work of physical comfort which also includes the thermal condition of the workplace. Temperature stress may affect workers in at least two immediate ways which are it may cause direct physical or psychological discomfort (Jeanie, 2017). Plus, it may also reduce task productivity among employees in the office and it also found that temperature affects an individual's thermal comfort and sensation. The colder temperatures have many relationships with how employee communicate with others (Wang, 2016). When workers are too cold, they will perceive others as behaving coldly and in a less open manner. Physical warmth leads to emotional warmth and trust contrarily. So it is essential in a workplace to have warm enough temperatures so that workplace relationships perform as smoothly as possible, as well. Plus, working in an office environment that is too hot can make employees lazy and lose focus. When the temperature is too hot for workers, stress can cause the body to lose water faster, causing low mental performance and decreased motor skills. Employees' body will be trying to preserve energy, which will undoubtedly slow your minds, making completing tasks and avoiding errors a difficult feat. A research conducted in China (Jin Wang, 2016) found that temperature significantly affects employees' spirit and increase their absenteeism. These research findings generally agreed that there should be an optimum temperature or more precisely, an optimum temperature range for performance because inappropriate office temperature increases employees' typing mistakes and drops their productivity in doing their tasks. A study conducted by Rasheed et. al., (2020) reported that employees are most satisfied of their working environment and productive during the summer as compared to during other seasons.

2.4 Lighting

Lighting is an instrument that illuminates a place so that people can see clearly. The purpose of light is very significant to carry out offices activities, and its effect on the employees' productivity varies. According to Boyce in Lighting research for interiors: the beginning of the end of the end of the beginning stated that indoor lighting quality has effects on the various behaviors of the occupants that leads to their health is still vague but further inspection is needed to find out whether the lighting conditions can improve the visual task recommendation level where it can be a positive contributor to the employees' productivity, mood and well-being. However, a recent study found that employees

prefer making natural lighting as their sources of illumination. This is supported by Energy and Building: Study on distributed individuation lighting model and analysis to energy consumption character which mentioned that people mostly prefer working with illuminance as it elevates their mood level and satisfaction to lighting. Apart from that, a big gap exists on the preferred illuminance which varies from person to person. Forty-seven pairs of matched experiment partners simulated various kinds of office activities in open office and finished questionnaire. Illuminance is a source of lighting that is produced naturally, by sun, and artificially, by oil and gas flames and electric light sources (Boyce). A study by Ali (2016) concluded that lighting plays a vital role in workers' productivity. Essentially, light greatly impacts human beings because it sets our body clock. Hence, exposure to appropriate lighting in the office is a workplace necessity as it can improve workers' productivity. Poor choice of office lighting directly affects work performance as it puts a strain on workers' eyes. Agarwal (2018) mentioned that poor lighting will have a negative impact on workers' health, both physical and mental, such as eye strain, fatigue, headache as well as stress and anxiety in more high pressured work environments. Apart from that, proper lighting also brings aesthetic advantages to the workplace. Thus, the researcher can conclude that adequate lighting has a positive influence on workers' productivity. Giarma et al. (2017) stated that a good lighting in a workplace heavily affects productivity. This is also supported by the study done by Beute and de Kort (2018), in which the researchers mentioned that since office employees spend most of their time indoors and rely on mostly artificial lightings, hence, lighting positively influences employees' mood, performance and mental attitude.

2.5 Productivity

Productivity is considered as the key to success in every organization, due to results showing that improving work productivity will have a significant impact, both socially or economically. According to previous research, employees' working productivity will be affected by the workplace environment factors which include thermal conditions, air quality, acoustics and lighting. (Azlan Shah, 2016). Workers performance can be linked to productivity. It is instead suggested that measuring self-reported subjective productivity through questionnaires may be appropriate. Measuring productivity gains in an office environments remains challenging and there would appear to be a lack of consensus in the literature about the potential magnitude of such gains with, for instance, (Clements-Croome, 2013) suggesting 4-10 per cent gains. Based on a previous research by Rolloos (1997), cited in Ali (2013) productivity is what people can produce with the least effort. Productivity is a ratio to measure how well an organization (or individual, industry, country) converts input resources (labor, materials, machines) into goods and services. Harris (2019) suggested that for employees to thrive at work, they must be able to work in a healthy environment which has good environment control systems such as ergonomic work settings, comfortable light levels with access to natural light, optimum indoor air quality and temperature range as well as a clean and tidy environment. Firms that derive their productivity advantage from firm-specific knowledge may wish to provide better working conditions in the hope that this would reduce employee turnover and minimize the risk of their productivity advantage spilling over to competing firms. Workers' productivity is essential because it increases the organisation's profit. A study conducted by Liang, Chen, Hwang, Shih, Lo, and Liao (2014) in Hong Kong found that workers need a pleasant working environment that allows them to work freely without any problems that may restrain them from reaching their full potential in meeting the organisation's standard. Thus, workers that experience harsh working environment will have lower productivity level and may also experience failure. Workers should meet the performance criteria set by the organisation to ensure the quality of their work. The comfort of physical environment consisting of office design and layout, indoor air quality, thermal condition, lighting, and noise will affect the performance as well as productivity of the workers (Ali, 2016; Nurbarirah, Jamin, Mohd. Beta, Ismail, Sakarji, & Mohd. Zain, (2020)). A pleasant work environment can contribute to the organisation's benefits and also to the workers. Essential factors in the work environment that should be considered include building design and age, workplace layout, workstation set-up, furniture as well as equipment design and quality, space, temperature, ventilation, lighting, noise, vibration, radiation, and air quality (Sarode, 2014).

The conceptual framework was adapted from Ali (2016) which sought to investigate the correlation between office environment and productivity.

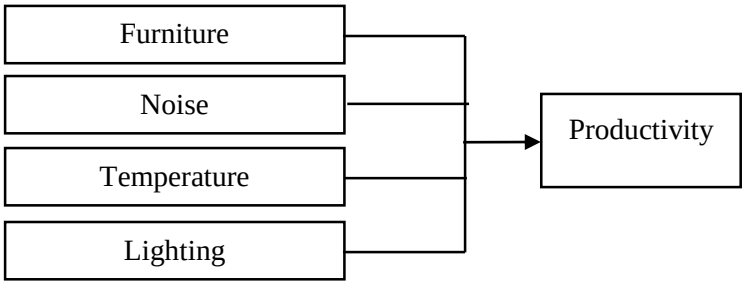

Figure 1: Conceptual framework adapted from Ali (2016)

3.0 METHODOLOGY

3.1 Research Design

This research was a quantitative study and utilised correlational design. The researcher used convenience sampling method to select the respondents for this study.

3.2 Sampling Design

The estimated population of respondents was 150, which consisted of government workers in Kota Belud district. The sample size (n=108) was estimated based on the sample size from Krejcie and Morgan (1970).

3.3 Questionnaire

The questionnaire on office environment and job performance was adopted from Moores and Benbasat (1991). The questionnaire had three sections with a total of 25 items. A total number of 120 printed questionnaires were distributed. All the 120 questionnaires were returned to the researcher but only 115 of the responses were valid. A reliability test was conducted, and the Cronbach Alpha value was 0.781 which implied that all items in the questionnaire had a sound internal consistency and thus indicated high reliability. The collected data were analysed using the Pearson Correlation Analysis in IBM Statistical Package for Social Science (SPSS). Table 1 displays the survey response rate.

Table 1: Rate of Survey Return

Response Rate	Frequency	Response Rate
No. of questionnaires distributed	120	96%
No. of questionnaires returned	115	

4.0 RESULTS AND DISCUSSION

4.1 Demographic Profile

Table 2 shows the demographic profile of the respondents. 71 out of 115 respondents were female workers and only 44 male workers participated in this study. 39 of the respondents were between 21 until 30 years old, 23 respondents' ages was between 31 to 40, 33 respondents were at the age between 41 to 40 and only 20 of the respondents were 51 years old and above. Bajau was the majority race of the respondents in this study with 50 employees, followed by Irannun (22), Kadazandusun (20), Malay (14) and others (9). For the level of education, majority of the respondents had a degree (71), followed by master's degree (20), diploma (13), SPM (10) and PhD (1). Table 2 details the demographic characteristics of the respondents.

Table 2: Profile of the Respondents

No.	Demographic	Frequency	Percentage (%)
1	**Gender**		
	Male	44	38.3
	Female	71	61.7
2	**Age (year)**		
	21 – 30	39	33.9
	31 – 40	23	20
	41 – 50	33	28.7
	More than 51	20	17.4
3	**Race**		
	Malay	14	12.2
	Bajau	50	43.5
	Irranun	22	19.1
	Kadazandusun	20	17.4
	Others	9	7.8
4	**Level of Education**		
	SPM	10	8.7
	Diploma	13	11.3
	Degree	71	61.7
	Master	20	17.4
	PhD	1	0.9

4.2 Normality Test

The normality results of this research exhibited that all the data were normal since the value for skewness and kurtosis were within the range as suggested by Pallant (2009). All variables were normal within the range between -2 and +2 as suggested by Pallant (2009) as shown in Table 3.

Table 3: Normality Test for the Variables

Variable	Skewness	Kurtosis
Worker Productivity	-0.169	-0.085
Furniture	0.122	-0.477
Noise	-0.365	0.480
Temperature	-0.512	0.385
Lighting	-0.345	0.470

4.3 Reliability Test

Table 4 shows the reliability test and Cronbach Alpha's value for worker productivity, noise, temperature, and lighting. The results were acceptable with the value of 0.7 which was considered

reliable (Pallant, 2009). Cronbach's alpha value for worker productivity was 0.781, noise was 0.736 with four items, temperature was 0.784 with five items, and lighting was 0.798 with five items. The value for furniture was considered as recommended by Nunnally (1976).

5.0 **Table 4: Distribution of Cronbach's Coefficient Alpha**

Variables	No of Item	Cronbach's Alpha
Worker Productivity	5	0.781
Furniture	5	0.603
Noise	5	0.736
Temperature	5	0.784
Lighting	5	0.798

5.1 Descriptive Statistics

Table 5 shows the descriptive analysis used as the basic measurements of data in the study. This study used a 5-point Likert Scale that varied from 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree. Referring to the 5-point Likert Scale measuring the level of agreement used for this research, in average, respondents agreed that constructive office environment positively impacted worker productivity as the mean was 4.28. The scores indicated higher worker productivity respondents also agreed that furniture and physical condition had impact on worker productivity as it scored high worker productivity with mean score of 4.12. Furthermore, most of the respondents rated agree and strongly agree that higher worker productivity was influenced by noise (3.75), temperature (3.81), and lighting (3.91).

Table 5: Descriptive Statistics for Office Environment and Worker Productivity

Variables	Mean	Std. Deviation
Worker Productivity	4.2887	0.48282
Furniture	4.1252	0.46676
Noise	3.7496	0.59639
Temperature	3.8122	0.62872
Lighting	3.9130	0.57560

5.2 Correlation Result

Analysis using Pearson Product Moment Coefficient was used to determine the relationship between the variables. Guidelines to determine the strength of the relationship as suggested by Cohen (1988) as cited from Pallant (2009) are:

Small = 0.1 to 0.29

Medium = 0.30 to 0.49

Large = 0.50 to 1.0

Table 6 shows a correlation analysis using Pearson Product Moment Coefficient to determine the relationships between the variables. The results showed that furniture had positive, medium and significant relationships towards worker productivity ($r=0.452$, $n= 115$, $p<.01$). The result indicated that the more adjustable the furniture, the higher the workers' productivity. Functional and adjustable furniture such as the chair was likely to increase their productivity as it made the working area comfortable and therefore, they were able to perform work with less strain and injury. Workers reported

they were mostly satisfied with their furniture condition that was adjustable and helped them perform works without feeling tired until the end of the working hour. They confirmed that furniture had a direct effect on their health. Glifford (2012) confirmed that workers can stay focused on tasks by having a comfortable and ergonomic chair instead of getting distracted by the feeling of discomfort. A study done by DeRango, Amick, Robertson, Bazzani, Rooney, Harrist and Moore (2002) also found that by simply providing the workers with the right chair, their productivity was boosted by 17.7 percent. Johnson, Zimmerman and Bird (2019) confirmed that the overall satisfaction with work area and furniture is an important factor of productivity models. As stated by Duru and Shimawua (2017), unsafe equipment or tools and poor furniture functions is one of the factors that causes poor productivity and Oliver (1975) concurred that congested office makes employees feel uncomfortable. Chaeriah (2022) concluded that furniture comfort has the highest impact towards productivity in all types of office setting. This study also corresponded with those done by Sehgal (2012), Sultan (2016) and Ali et. al., (2019).

For noise, the result showed that there was a negative, small but significant relationship towards workers' productivity ($r= -0.293$, $n=115$, $p<.01$). This result indicated that the workers' productivity was higher when there was less noise at the workplace. The respondents agreed that although their workspace had a little noise distraction they could still stay productive. However, they admitted that a noise free environment would increase their productivity. According to the research done by Al-Omari and Okasheh (2017), many researchers indicate that noisy places and exposing workers to such conditions can affect their job performance quality but it depends on the nature of the working environment. 100 percent of the respondents agreed that there is a noise in their work environment. A study done by Realyvasques, Maldonado-Macias, Garcia-Alcaraz, Cortes-Robles and Blanco-Fernandez (2016) found that noise presented significant direct effect on employees' psychological characteristics and either direct or indirect effects on the employees' performance. For long-term effects, a study one by Lusk, Hagerty, Gillespie and Caruso (2002) found chronic noise in the workplace increases blood pressure and heart rate. Apart from contributing to hearing loss, however, it can be concluded that, the highest ratio of noise comes from conversation of office workers and it is an acceptable environment as the workplace need the employees to communicate with each other. In another study conducted by Chaeriah (2022), the impact of noise and privacy was the highest for share-room office with 25% average. This shows there is interrelation between noise and office layout or design and this could be another variable to be explored further.

For temperature, the result showed that there was a positive, medium and significant relationship towards worker productivity ($r= 0.490$, $n=115$, $p<.01$). According to this, temperature scored the highest significant level of correlation. This result indicated that government workers at Kota Belud agreed that office temperature affected their work productivity. Adequate and suitable level of temperature according to the employee work nature was most preferable for a higher productivity. As surveyed, most of the office environment were filled with air-conditioner instead of natural wind. Furthermore, the respondents also agreed that their office temperature was suitable for their working condition during hot and cold weather and they had control over the temperature for their work space. They also felt that the room temperature was conducive enough for productive work. This finding is related to the study conducted by Arova (1975) as cited in Duru and Shimawua (2017), that workers will not thrive in a bad weather such as high sunny and raining weather because it may affect the productivity of employees. Inappropriate temperature is negatively correlated with thermal comfort (Roskams & Haynes, 2020). Office environment where they have the control over the temperature could boost their productivity as they can adjust the temperature according to the weather. This finding showed that the more adequate the temperature at the office, the higher the workers' productivity.

For lighting, the result showed a positive, medium, and significant relationship towards the workers' productivity ($r= 0.429$, $n=115$, $p<.01$). The results indicated that the more suitable the lighting was in the office, the higher the workers' productivity. According to the survey, workers reported that they received enough natural lighting at their office as the office provided sufficient amount of windows. They also mentioned they had control over the lighting on their workspace and they could work longer hours without experiencing eye strain. They also indicated that the light at their work space was efficient and suitable for their work needs. Based on the finding by Al-Omari and Okasheh (2017), the

highest ratio of poor lighting comes from natural light and has slightly negative impact on employees. This is in line with Schultz (2006), who confirmed that inconvenient lighting is a source of distress, thus leading to poor job productivity. A study by Roskams and Haynes (2020) concurred with the findings of this study as they too, found a small correlation between lighting and visual comfort which leads to employees' effectiveness to perform work. It can be concluded that employees need an efficient and convenient lighting source such as enough natural light at the office to perform their job. In other words, worker productivity is much higher when there is more natural light in the office.

Table 6: Correlation

Variables	Furniture	Noise	Temperature	Lighting	Productivity
1. Furniture	1				
2. Noise	.194*	1			
3. Temperature	.364**	.347**	1		
4. Lighting	.442**	.465**	.566**	1	
5. Productivity	.452**	-.293**	.490**	.429**	1

6.0 CONCLUSION

It can concluded that generally the respondents agreed that all aspects of office environment do affect their work productivity depending on their job nature. The office environment aspects such as furniture, temperature and lighting played important roles to ensure that the workers were comfortable at work and subsequently boosted their productivity. The government workers at Kota Belud were mostly satisfied with their furniture condition that was adjustable and helped them perform works without feeling tired until the end of the working hour. They were satisfied with the amount of noise at the office and it did not affect their productivity. In addition, they agreed that office temperature affected their work productivity. Adequate and suitable level of temperature for employees is needed for higher productivity (Ali et. al., (2019); Chaeriah, (2022). The respondents reported that they received enough natural lighting at their office as the office layout provided sufficient amount of windows. These results confirmed that the government workers at Kota Belud agreed that all the office environment (furniture, noise, temperature, lighting) impacted work productivity at their workplace. An efficient and convenient office environment supported with good and regularly maintained equipment will improve workers' job performance and enhance their productivity. The respondents felt energized to start their task as the environment was designed to meet their physiological and psychological needs. Hence, organisations should be aware of the office environment aspects and provide workers with convenient workplace to help workers increase their productivity. Government agencies too should pay attention towards office environment factors such as furniture, noise, temperature and lighting to ensure workers perform their job in a comfortable workplace. This is to boost the organisation's productivity as well as the workers' well-being. Furthermore, providing workers with ergonomic furniture and safe tools are also vital to help workers perform their job accordingly and boost their performance. In the future, more studies should be conducted in this field as most studies are focused on Peninsular Malaysia and overseas. This is to promote the awareness of creating a more ergonomic, functional office environment with efficient working space for the workers to ensure higher worker productivity.

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