ANALYSIS OF WORKPLACE ERGONOMICS ON EMPLOYEE PERFORMANCE IN PT. BNI (PERSERO) TBK. MAIN BRANCH OFFICE MANADO

by:
Isra Manggo[1]

[1]Faculty of Economy and Business
International Business Administration (IBA) Program
University of Sam Ratulangi Manado

email: [1]witzig_icha@rocketmail.com

ABSTRACT

As the worldwide business competition gets tougher every year, companies have to compound their strategies in keeping their best talents within the organization. One of the essential keys in keeping their best employees is through the consideration of ergonomic aspects for the office design. One of the advantages of following ergonomic workplace is that it aids to minimize the harmful effects of carelessness, damage to equipment, or even injury to death to employees. The main objectives of the study are to determine the impact of workplace ergonomics on employee performance and to identify the most influential variable on employee performance. This research is a quantitative research. The governmental bank, PT. BNI (Persero) Tbk. main branch office Manado has been chosen as the population for the research with 100 employees in total. The study took 75 employees as the sample. Results reveal that all variables have simultaneous impact on employee performance but not partially because color and natural air quality have insignificant results, while lighting is the most influential factor among the variables. This study suggests to the company to pay more attention towards color and natural air quality consideration to enhance employee performance in a better way.

Keywords: *office design, ergonomic, workplace, performance*

INTRODUCTION

Research Background

As the worldwide business competition gets tougher every year, companies have to compound their strategies in keeping their best talents within the organization. Employee is one of the most important elements within an organization. They are like the driving force of a company in achieving their goals and gaining profit. One of the essential keys in keeping their best employees is by considering the ergonomic aspects for the company. It refers to increase the productivity of the employees for being around the office. Since the office is where all the business activities take place then ergonomic are taken into account by every owner of a company in creating efficient working environment and to generate excellent performance from the employees. Snell and Bohlander (2010:167) explained that ergonomic is the study of people at work and the practice of matching the features of products and jobs to human capabilities, preference, and limitations of those who are to perform the job.

Keeling and Kallaus (1996) stated that the quality and quantity of work generated by employees are influenced by the office environment. Meanwhile, Quible (2000) stated that out that poor environmental conditions can cause inefficient worker productivity as well as reduce their job satisfaction, which in turn will impact on the financial well being of the organization. This is the most crucial circumstance that must be impeded by the company in order to keep surviving in business life cycle. In ergonomics, there are several elements considered in designing the office design in enhancing the workplace condition such as: color, natural air quality, noise level, room temperature, lighting, general flexibility on employee performance. Asante Kingsley (2012) stated that although other organizational elements such as praise and recognition, compensation and financial reward impact on employee performance, studies have also shown that an employee's workplace environment is a key determinant of their level of performance.

One of the advantages of following ergonomic workplace is that it aids to minimize the harmful effects of carelessness, damage to equipment, or even injury to death to employees. Numerous studies have proven several elements of office design regarding to ergonomics which impacted essentially on employee performance are: furniture, noise levels, lighting, temperature, air quality and general comfort. In addition of these mentioned elements, there are still many elements that can be taken into account such as color, work flow, sensible layouts, etc. PT. BNI (Persero) Tbk. is the oldest commercial bank in Indonesia, since it was established in 1946. Recently, PT. BNI (Persero) Tbk is rewarded as the bank with promising and excellent in cash management solution for the customers by The Corporate Treasurer 2013 (tribunnews.com, 2014). Means PT. BNI (Persero) Tbk. is a strong contender against three other prominent banks in Indonesia which are Bank Mandiri, Bank BRI and Bank BCA. This achievement is directly connected to the employees and their performances. Every Bank has its own ergonomic standards in creating a convenient workplace for the employees. These standards determine how the office design should be considered. However, most of the Banks would go with minimalist modern concept as well as considering the ergonomics for the office. These fours banks also apply the same concept and the ergonomic considerations, but, what differentiates PT. BNI (Persero) Tbk. with the mentioned ones is the representativeness of the Logo's color palette (turquoise and orange) into the office environment which obviously gives the feeling of uniqueness and attractiveness.

Empirical evidence reveals that ergonomic consideration has been done too much despite of a well-planned design of the office surroundings has been implemented. In the end employee safety, comfort, motivation and general performance are hampered. This research study therefore entitles "The Impact of Workplace Ergonomic on Employee Performance in PT. BNI (Persero) Tbk. Main Branch Office Manado" which examine PT. BNI (Persero) Tbk. Main Branch Office Manado and further assessment on whether or not they affect on employee performance at PT. BNI (Persero) Tbk. Main Branch Office Manado.

Research Objectives

The objectives of this research are to analyze the impact of:

1. Color, natural air quality, lighting, noise, spatial arrangement, furniture, work flow on employee performance in PT. BNI (Persero) Tbk. Main Branch Office Manado simultaneously.
2. Color on employee performance in PT. BNI (Persero) Tbk. Main Branch Office Manado partially.
3. Natural air quality on employee performance in PT. BNI (Persero) Tbk. Main Branch Office Manado partially.
4. Lighting on employee performance in PT. BNI (Persero) Tbk. Main Branch Office Manado partially.
5. Noise on employee performance in PT. BNI (Persero) Tbk. Main Branch Office Manado partially.
6. Spatial arrangement on employee performance in PT. BNI (Persero) Tbk. Main Branch Office Manado partially.
7. Furniture on employee performance in PT. BNI (Persero) Tbk. Main Branch Office Manado partially.
8. Work flow on employee performance in PT. BNI (Persero) Tbk. Main Branch Office Manado partially.

THEORETICAL FRAMEWORK

Employee Performance

Sinha (2001) explained Employees' Performance could go up when employees have willingness and have an openness behavior in doing their tasks that is related to performance. Because employees who are willing to work and being opened in doing their jobs could lead to positive performance which is good for the company's stability. Greenberg and Baron (2000) argued that social status that can lead to positive result on employee performance if the employees can combine their performance along with their skills.

Ergonomics

Snell and Bohlander (2010:167) stated the ergonomic definition as an interdisciplinary approach to designing equipment and systems that can be easily and efficiently used by human being. Meanwhile, Sanders and McCormick (1993) argued that ergonomics involve a set of information about human behavior, abilities and limitations and other characteristics to the design of tools, machines, tasks, jobs, and environment for productive, safe, comfortable and effective human use.

Color

Baughan-Young (2001) stated that color roles an important part for human body, mind and spirit because somehow color can impact productivity and wellness. Kwallek (2002) argued that wrong color choices may cause bad influence on health mentality such as eyestrain, headache, and fatigue.

Natural Air Quality

Keeling and Kallaus (1996) and Quible (1996) stated that the air quality contains four factors which are: temperature, humidity, ventilation, and cleanliness. A comfortable office environment is a building or room in which workers can generate their work properly as it clean, with proper range of temperature, enough ventilation, and an adequate humidity. Quible (1996) described that the technological advances can not be denied, many devices have been created by manufactures with excellent performance to develop good air quality and these devices clean the air, germs, dust, and dirt,

Lighting

Bachner (2000) theorized that the consideration of lighting is crucial for the job tasks' inside the offices to help the employees with their visual job activities. In addition, Powell and Weinberg (2000) stated that the way of choosing the suitable light is by thinking over the needs of employees.

Noise

Keeling and Kallaus (1996) stated that people cannot achieve good performance in a silent environment, because at some level, sound may generate a healthy background and can also assist employees accomplish their work. Quibble (1996) described that following this immoderate noise can impact psychologically on the employees as in escalating the blood pressure and metabolic rate of the employees which in the end can decline their productivity.

Spatial Arrangement

Deb and Sinha (2010) stated the importance of spatial planning has become more prominent which has to be on line with the objectives of an organization. Interaction and communication that suit the environment would lead to a positive alignment. In addition, Deb and Sinha (2010) also explained that the design of spatial arrangement and its consideration can be the most substantial strategy in Human Resource in enhancing the possibility in balancing the workers with their individual job and teamwork assignments.

Furniture

Burke (2000) theorized that furniture is another important concern in designing an appropriate office that managers must pay attention at such as adjustable office furniture for desks and chairs, which can support the employees' productivity and generate well performance by the employees who have to work full time without any obstacles. These days, manufacturers work hard in creating comfortable furniture with various types of furniture. Keeling and Kallaus (1996) explained that administrative Office Managements should be aware of selecting suitable furniture for the office.

Work Flow

Csikszentmihalyi (1997) explained flow experience as one that many people have used to describe the sense of effortless action they feel in moments that stand out as the best in their lives. Bakker (2005) explained that there were previous studies conducted, where work flow was applied as the concept for the situation and defined flow as a short-term of peak experience at work is characterized by three aspects absorption, work enjoyment, and intrinsic work motivation.

Previous Research

El-Zeiny (2012) found that that the overall impact of different elements showed that furniture affects the productivity of most employees; therefore, it is recommender to consider ergonomic furniture while buying office furniture. Saleem, et. al (2011) found that spatial arrangement and productivity have a positive relationship. However, temperature and noise have insignificant impact on the productivity. Hameed and Amjad (2009) found that lighting affects the most on productivity of most employees. Sakhlati and Jha (2011) found that ergonomic changes can increase job accuracy over 25%.
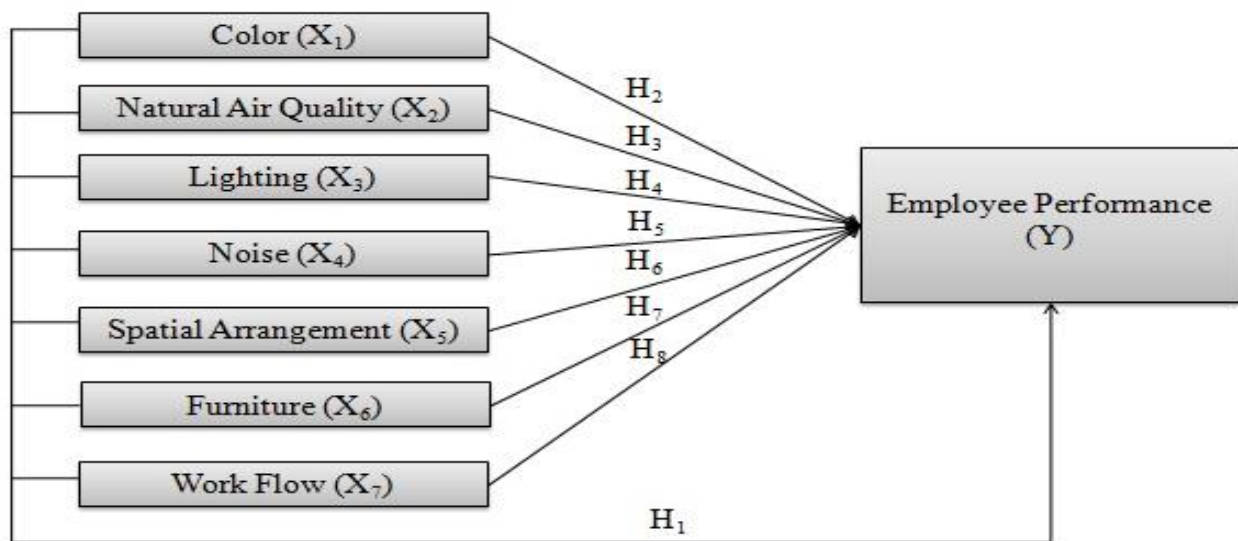
Conceptual Framework

Figure 1. Conceptual Framework

Source: Theoretical Review, 2014

Research Hypothesis

There are several hypothesis of this research which are:

H_1: Color, Natural Air Quality, Lighting, Noise, Spatial Arrangement, Furniture, and Work Flow impact Employees Performance simultaneously.

H_2: Color impacts Employee Performance partially.

H_3: Natural Air Quality impacts Employee Performance partially.

H_4: Lighting impacts Employee Performance partially.

H_5: Noise impacts Employee Performance partially.

H_6: Spatial Arrangement impacts Employee Performance partially.

H_7: Furniture impacts Employee Performance partially.

H_8: Work Flow impacts Employee Performance partially.

RESEARCH METHOD

Type of Research

The study of this research is a causal study which to investigate the impact of workplace ergonomics on employee performance.

Place and Time of Research

This research is located in PT. BNI (Persero) Tbk. Main Branch Office Manado, Jl. Dotulolong Lasut , area Pasar 45 across Taman Kesatuan Bangsa (TKB) and is conducted between June to July 2014.

Population and Sample

This research' population is the entire employees in PT. BNI (Persero) Tbk. Main Branch Office Manado with numbers of 100. The focus is only the office for the main branch office. The sample which is taken for this research study is 75 employees of PT. BNI (Persero) Tbk. Main Branch Office Manado.

Data Collection Method

Data collection method is an integral part of research design, Sekaran and Bougie (2009:184). The data collection is gathered through interviewing, administered questionnaire and observational study.

Operational Definition and Measurement of Variables

1. Employee Performance (Y) is defined with the positive results or negative results of employee's overall working performance with indicators are willingness, motivation and job done on track.
2. Color (X_1) can be described as the subjective preference of how they perceive the wavelength light with indicators are color combination, individual differences, and color selection.
3. Natural Air Quality (X_2) defined with well built ventilation, keeping up the cleanliness of the office frequently before and after work, and good air temperature inside the office.
4. Lighting (X_3) is defined with bright lights and correct positions in helping the employees with their work with indicators are natural light, artificial light and amount of light.
5. Noise (X_4) is the acceptance of sound in the surroundings either positively or negatively with indicators are privacy, background sound, and silent.
6. Spatial Arrangement (X_5) can be defined with an accessible workplace where the employee feels comfortable to interact with the other employees with indicators are distance, location and interaction.
7. Furniture (X_6) is choosing appropriate furniture for the office surroundings with indicators are adjustable furniture, moveable, and appropriate selection.
8. Work Flow (X_7) explained with job task procedures with indicators are absorption, enjoyment and work motivation.

Data Analysis Method

Validity and Reliability

Validity is the evidence that the instrument, technique, or process used to measure a concept does indeed measure the intended concept, Sekaran and Bougie (2009:447). The reliability of a measure indicates the extent to which it is without bias (error free) and hence ensures consistent measurement across time and across the various items in the instrument. In other words, the reliability test of a measure is an indication of the stability and consistency with which the instrument measures the concept and helps to asses the "goodness" of a measure, Sekaran and Bougie (2009:161).

Multiple Regression Analysis

Multiple regression is the appropriate method of analysis when the research problem involves a single metric dependent variable presumed to be related to two or more metric independent variables. Additional, Sekaran and Bougie (2009:441) stated that multiple regression analysis is a statistical technique to predict the variance in the dependent variable by regressing the independent variables against it.

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + e$$

Description:

Y	= Employee Performance	X_6	= Furniture
X_1	= Color	X_7	= Work Flow
X_2	= Natural Air Quality	$b_1, b_2, b_3, b_4, b_5, b_6, b_7$	= Regression coefficient
X_3	= Lighting	a	= constant
X_4	= Noise	e	= error
X_5	= Spatial Arrangement		

RESULT AND DISCUSSION

Result

Validity and Reliability Test

The result of validity can be seen by comparing the result which is shown on the column on corrected-item total correlation with rtabel statistic. The result can be clarified valid if all variables have bigger result than rtabel. Color (X_1) = 0.338, Natural Air Quality (X_2) = 0.449, Lighting (X_3) = 0.548, Noise (X_4) = 0.400, Spatial Arrangement (X_5) = 0.260, Furniture (X_6) = 0.598, and Work Flow (X_7) = 0.524. The rtabel statistic is 0.227

with the significance level of 5% which means all the variables' results are above rtabel and valid. The minimum value of Cronbach Alpha must be 0.6 or it is better if the value is above 0.6. The reliability statistics table shows the value of Cronbach Alpha is 0.763 which means the variables of this research is accurate and can be trusted.

Table 1. Realibility Statistic

Cronbach's Alpha	N of Items
.763	8

Source: Data processed, 2014

Classical Assumption Test
Table 2. Multicollinearity

Model		Collinearity Statistics	
		Tolerance	VIF
1	Color	.773	1.294
	Natural Air Quality	.719	1.391
	Lighting	.689	1.451
	Noise	.832	1.202
	Spatial Arrangement	.923	1.084
	Furniture	.622	1.607
	Work Flow	.646	1.547

a. Dependent Variable: Employee Performance
    Source: Data processed, 2014

The tolerance value of color is 0.773, natural air quality is 0.719, lighting is 0.689, noise is 0.832, spatial arrangement is 0.932, furniture is 0.622, and work flow is 0.646 which are greater than 0.10. The VIF value of color is 1.294, natural air quality is 1.391, lighting is 1.451, noise is 1.202, spatial arrangement is 1.084, furniture is 1.607 and work flow is 1.547. Therefore, there is no multicollinearity occurred on this research.
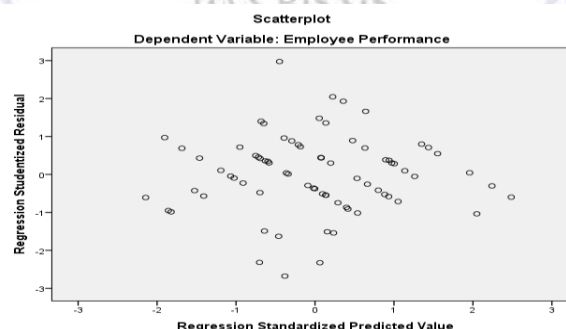
Heteroscedascity

Figure 2. Heteroscedascity result
Source: Data processed, 2014

Figure 2 shows the result of Heteroscedasticity, it can be seen that the pattern of dots is spreading and not making clear pattern, above and below 0 (zero) in ordinate, this means or proves the model is free from Heteroscedasticity, there is no Heteroscedasticity in this regression.

Normality

In multiple regression models, the residual is assumed to be normally distributed. A residual is the difference between the observed and model-predicted values of the dependent variable. The residual for a given product is the observed value of the error term for that product. A histogram or P-P plot of the residuals can help researchers to check the assumptions of normality of the error term. The requirements are as follow:
1. The shape of the histogram should approximately follow the shape of the normal curve.
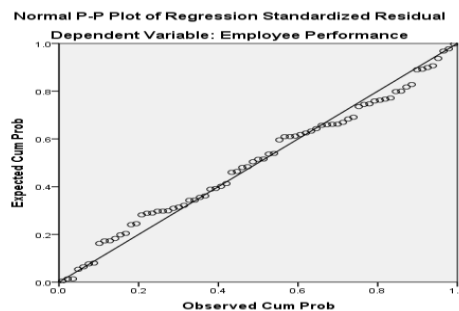2. The P-P plotted residuals should the 45-degree line.

Figure 3. Normality Result
Source: Data Processed, 2014

Figure 3 shows that the result is distributed normally because the dots spread diagonally following the diagonal line.

Multiple Regression Analysis

Multiple Regression is a statistical technique that simultaneously develops a mathematical relationship between two or more independent variables and an interval-scaled dependent variable, Malholtra (2009:566). This research's measurement tool is SPSS 20.0 This tool can determine the accuracy of the data processed. The result of multiple regression is followed by an equation:

$$Y = 1.302 - 0.72X_1 - 0.136X_2 + 0.328X_3 + 0.190X_4 + 0.155X_5 + 0.271X_6 + 0.216X_7$$

The explanations of the equation are as follow:

a. Constant 1.302 shows the influence of Color (X_1), Natural Air Quality (X_2), Lighting (X_3), Noise (X_4), Spatial Arrangement (X_5), Furniture (X_6), and Work Flow (X_7) and Employee Performance (Y). It means that, in a condition where all independent variables are constant (zero), employee performance (Y) as dependent variable is predicted to be 1.302.
b. Variable X_1 (Color) has an impact to Y (Employee Performance) as many as -0.72. in condition where other variables are constant, if there is one unit increasing in X_1, Y is predicted to be increased by -0.72.
c. Variable X_2 (Natural Air Quality) has an impact to Y (Employee Performance) as many as -0.136. In condition where other variables are constant, if there is one unit increasing in X_2, Y is predicted to be increased by -0.136.
d. Variable X_3 (Lighting) has an impact to Y (Employee Performance) as many as 0.328. In condition where other variables are constant, if there is one unit increasing in X_3, Y is predicted to be increased by 0.328.
e. Variable X_4 (Noise) has an impact to Y (Employee Performance) as many as 0.190. In condition where other variables are constant if there is one unit increasing in X_4, Y is predicted to be increased by 0.190.
f. Variable X_5 (Spatial Arrangement) has an impact to Y (Employee Performance) as many as 0.155. In condition where other variables are constant, if there is one unit increasing in X_5, Y is predicted to be increased by 0.155.

g.   Variable X_6 (Furniture) has an impact to Y (Employee Performance) as many as 0.271. In condition where other variables are constant, if there is one unit increasing in X_6, Y is predicted to be increased by 0.271.

h.   Variable X_7 (Work Flow) has an impact to Y (Employee Performance) as many as 0.216. In condition where other variables are constant, if there is one unit increasing in X_7, Y is predicted to be increased by 0.216.

Testing the Goodness Fit: Coefficient of Multiple Regression (R) and Coefficient Determination (R^2)

Table 3. Table R and R^2

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.766[a]	.586	.543	1.139

a. Predictors: (Constant), Work Flow, Color, Spatial Arrangement, Noise, Natural Air Quality, Lighting, Furniture

Source: Data Processed, 2014

The result on R with the result of 0.766 indicates that there is a strong relationship between all of the variables with Employee Performance and with 58% impacted from the whole variables while the rest 42% other factors are not included into this research.

Hypothesis Testing

Hypothesis testing is undertaken to explain the variance in the dependent variable or to predict organizational outcomes, Sekaran and Bougie (2009:108). Hypothesis testing consists of F-test and T-test. F-test is used to determine simultaneous impact and T-test is used to determine partial impact of each variable to dependent variable.

F-Test

In determining the F-test, need to see the value of F_{count} and F_{table}. If $F_{count} > F_{table}$ (F_{count} is more than F_{table}) , H_0 is rejected and if $F_{count} < F_{table}$ (F_{count} is lesser than F_{table}), H_0 is accepted. To identify the value of F_{table}, it can be calculated with F_{table} = FINV (0,05, k-1, n-k). The ANOVA table below is the result of F-test which computed through SPSS statistical calculation.

Table 4.F-Test result

ANOVA[a]

	Model	Sum of Squares	df	Mean Square	F	Sig.
	Regression	123.364	7	17.623	13.575	.000[b]
1	Residual	86.983	67	1.298		
	Total	210.347	74			

a. Dependent Variable: Employee Performance

b. Predictors: (Constant), Work Flow, Color, Spatial Arrangement, Noise, Natural Air Quality, Lighting, Furniture

Source: Data Processed, 2014

The result shows the value of F_{count}. To find out the value of F_{table} the calculation is actualized as follow:

F_{count} = 13.575

F_{table} = FINV (0,05, k-1, n-k)

                         = FINV (0,05, 7-1, 75-7)

                         = 2.235

The result of F-Test result on F_{count} = 13.575 with a significance level of 0.000. In this research $F_{count} > F_{table}$ (F_{count} is larger than F_{table}), then the regression model of F-test can be defined 13.575 > 2.235 which means H_0 is rejected. Hence, all independent variables such as X_1 (Color), X_2 (Natural Air Quality), X_3 (Lighting), X_4

(Noise), X_5 (Spatial Arrangement), X_6 (Furniture), and X_7 (Work Flow) simultaneously impact the dependent variable which is Y (Employee Performance).

t-Test

t-test is a statistical test that establishes a significant mean difference in a variable between two groups, Sekaran and Bougie (2009:446).

Table 5. t-test

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.302	1.454		.896	.374
Color	-.072	.081	-.080	-.892	.376
Natural Air Quality	-.136	.074	-.171	-1.845	.069
1 Lighting	.328	.090	.345	3.646	.001
Noise	.190	.083	.196	2.281	.026
Spatial Arrangement	.155	.077	.165	2.019	.047
Furniture	.271	.088	.305	3.065	.003
Work Flow	.216	.092	.230	2.357	.021

a. Dependent Variable: Employee Performance
Source: Data Processed, 2014

t_{table} $\quad = TINV(0.05, n-k)$
$\qquad\quad = TINV(0.05, 68)$
$\qquad\quad = 1.995$

The partial impacts of each independent variable are explained as follows:

a. Color and Employee Performance
The value of t_{count} of X_1 (Color) is -0.892 and the value of t_{table} is 1.995, $t_{count} < t_{table}$ (t_{count} is lesser than t_{table}). Therefore, H_0 is accepted and H_2 is rejected which means X_1 (Color) does not impact Y (Employee Performance) partially.

b. Natural Air Quality and Employee Performance
The value of t_{count} of X_2 (Natural Air Quality) is -1.845 and the value of t_{table} is 1.995, $t_{count} < t_{table}$ (t_{count} is lesser than t_{table}). Therefore, H_0 is accepted and H_3 is rejected which means X_2 (Natural Air Quality) does not impact Y (Employee Performance) partially.

c. Lighting and Employee Performance
The value of t_{count} of X_3 (Lighting) is 3.646 and the value of t_{table} is 1.995, $t_{count} > t_{table}$ (t_{count} is larger than t_{table}). Therefore, H_0 is rejected and H_4 is accepted which means X_3 (Lighting) impacts Y (Employee Performance) partially.

d. Noise and Employee Performance
The value of t_{count} of X_4 (Noise) is 2.281 and the value of t_{table} is 1.995, $t_{count} > t_{table}$ (t_{count} is larger than t_{table}). Therefore, H_0 is rejected and H_5 is accepted which means X_4 (Color) impacts Y (Employee Performance) partially.

e. Spatial Arrangement and Employee Performance
The value of t_{count} of X_5 (Spatial Arrangement) is 2.019 and the value of t_{table} is 1.995, $t_{count} > t_{table}$ (t_{count} is larger than t_{table}). Therefore, H_0 is rejected and H_6 is accepted which means X_5 (Spatial Arrangement) impacts Y (Employee Performance) partially.

f. Furniture and Employee Performance
The value of t_{count} of X_6 (Furniture) is 3.065 and the value of t_{table} is 1.995, $t_{count} > t_{table}$ (t_{count} is larger than t_{table}). Therefore, H_0 is rejected and H_7 is accepted which means X_6 (Furniture) impacts Y (Employee Performance) partially.

g. Work Flow and Employee Performance

The value of t_{count} of X_7 (Work Flow) is 2.357 and the value of t_{table} is 1.995, $t_{count} > t_{table}$ (t_{count} is larger than t_{table}). Therefore, H_0 is rejected and H_8 is accepted which means X_7 (Work Flow) impacts Y (Employee Performance) partially.

Discussion

The result of the multiple regression analysis shows that the value of significance obtained for Color is greater than significance of 0.05 means that Color does not impact Employee Performance significantly. On the t-test result, Color is valued oppositely with the result below t_{table}. This result is supported by previous research of El-Zeiny (2012) that indicated color as the least valuable factor that impact performance. This means most of the employees do not feel bothered by color as an important factor in impacting their performance at work. The indicators also indicated reverse impact on employee performance because based on the result the more the color indicators consideration increase, the lower the employee performance would result.

The result of the multiple regression shows that the value of significance obtained for Natural Air Quality is greater than significance of 0.05 means there is an insignificant relationship between Natural Air Quality and Employee Performance. On t-test, Natural Air Quality results a large number of negative result which is below t_{table}. A previous research that supports this result is by Saleem et al. (2011) shows that natural air quality impacts badly on employee performance. This could be described over the temperature adjustment inside the office, humidity and cleanliness. Despite cleanliness mostly responds positively, apparently the temperature is found not adjustable because the temperature can be too cold where some employees can not deal with this kind of temperature which is also related with the humidity of the office.

The result of the multiple regression analysis shows that the value of significance obtained for Lighting is below significance of 0.05 means that Lighting impacts Employee Performance significantly. This result assists by previous research of Hameed and Amjad (2009) which shows that lighting has an impact on employee performance. Therefore, it is highly recommended to take into account the lighting conditions in the office. The amount of lighting consumed by the employees in PT. BNI (Persero) Tbk. Main Branch Office Manado for their daily routines have fulfilled their needs either with the number of windows for natural light and supported by sufficient artificial lights since they have to spend hours sitting and doing their activities. El-Zeiny (2012) also shows that satisfaction of the physical workplace is dominated by light. This means adequate light requires executing task work is very important.

The result of multiple regression analysis shows that the value of significance of noise obtained is below significance of 0.05. Hameed and Amjad (2009) on their previous research also show noise impacts employee performance. The employees as the respondents from PT. BNI (Persero) Tbk. Main Branch Office Manado agreed upon getting privacy in their workplace, calm office helps them to concentrate because none of them would speak loudly while being at the office building, and apparently music also helps them in terms of resisting stressful while working due to deadline.

The result of multiple regression analysis shows that the value of significance of spatial arrangement obtained is below significance of 0.05. The supporting result by El-Zeiny (2012) shows that spatial arrangement roles in satisfaction of the employees with the physical workplace which means access to spaces that accommodate the tasks they need to execute. Another supporting previous research comes from Hameed and Amjad (2012) with a positive relationship between Spatial Arrangement to Employee Performance. Most of the respondents from PT. BNI (Persero) Tbk. Main Branch Office Manado show that an adjusted position based on their division does not mean they cannot interact with other employees openly and interactions help them in completing their job tasks.

The result of multiple regression analysis shows that the value of significance of furniture obtained is below significance of 0.05. Uncomfortable furniture indeed impacts the feelings of the employees while working. The previous research of Hameed and Amjad (2009) evokes a positive relationship between furniture and employee performance. Employees who have to spend hours daily and if the furniture selection is not comfortable according to the needs of the employees their productivity is impacted. In addition, another previous research by El–Zeiny (2012) in the descriptive result shows that furniture as the most impacting factor towards employees' performance. The employees of PT. BNI (Persero) Tbk. Main Branch Office Manado seem to positively approve that their furniture are adjustable in terms of adjusting their seats and negatively no impacts on their health. This means the employers of PT. BNI (Persero) Tbk. Main Office Manado always pay attention in the selection of furniture because appropriateness contributes an important part for the employees' comfort.

The result of multiple regression analysis shows that the value of significance of work flow obtained is below significance of 0.05.This result shows a positive relationship between work flow and employee performance. The employees of PT. BNI (Persero) Tbk. Main Branch Office Manado obviously need supporting facilities that can be electronic equipments in helping them to get their work easily accomplished without having any troubles. Besides, the employees of PT. BNI (Persero) Tbk. Main Branch Office Manado mostly respond positively to a conducive working environment therefore they can enjoy their activities to the fullest.

CONCLUSION AND RECOMMENDATION

Conclusions

There are two constructive findings that can be concluded from overall result in this research, which are listed as follow:

1. Lighting is the most dominant variable which impacts on Employee Performance.
2. F-Test and t-test results, all variables of workplace ergonomics impact simultaneously on employee performance but not partially because color and natural air quality have insignificant impact on employee performance.

Recommendation

The result and conclusion of the research, the recommendation given are as follows:

a. To the future researcher, it is suggested that for the future researcher to consider reinvestigating the impact of workplace ergonomics on employee performance in order to enhance the human resource.

b. To the company, it is recommended to keep maintaining the office ergonomics for the company particularly lighting as it shows the most significant impact on employee performance. Hence, it is important to always keep an eye on lighting consumption towards the employees. As for the insignificant ones, the company is recommended to be concerned about color and natural air quality towards the employees' performance even more.

REFERENCES

Bachner, P. John, 2000. Quality lighting means quality work. *Quality Progress*. Vol. 33, No. 7. Available on: http://makassar.lan.go.id/dokumen/artikel%20Evie.pdf. Retrieved on: 4th May 2014. Pp. 67-71.

Bakker, B. Arnold, 2005. Flow among music teachers and their students: The crossover of peak experiences, *Journal of Vocational Behavior*. Vol. 66. Available on: www.beanmanaged.com/doc/pdf/.../articles_arnold_bakker_120. Retrieved on: 4th May 2014. Pp.26–44.

Baughan-Young, K., 2001. The Color of Success. *Journal of Property Management*. Vol. 66, No. 5. Available on: http://makassar.lan.go.id/dokumen/artikel%20Evie.pdf. Retrieved on: 4th May 2014. Pp. 68–69.

Burke, A. (2000). The challenge of seating selection, *Ergonomic Supplement*. Vol. 69, No. 4. Available on: http://makassar.lan.go.id/dokumen/artikel%20Evie.pdf. Retrieved on: 4th May 2014. Pp. 70–72.

Csikszentmihalyi, M., 1997. Finding Flow: The Psychology of Engagement with Everyday Life. HarperCollins, New York. Available on: http://www.uv.es/docpot/documentos/publicaciones_recientes/ARTICULO_PDF/Salanova_06/Salanova_Flow_at_Work_06. Retrieved on: 4th May 2014.

El-Zeiny, R. M. Ali., 2012. The Interior Design of Workplace and its Impact on Employees' Performance: A Case Study of Private Sector Corporations in Egypt. *Procedia - Social and Behavioral Sciences*. Vol. 35. Available on: www.fspu.uitm.edu.my/cebs/images/stories/cebs/ajebsv4n11c5. Retrieved on: 4th May 2014. Pp. 746–756.

Deb, S. and Sinha, S., 2010. Spatial Influence on Organizational Creativity: through Syntactic Analysis of Space. *Asian Journal of Management Research*. ISSN: 2229 – 3795. Available on: www.ipublishing.co.in/ajmrvol1no1/sped12011/AJMRSP1010. Retrieved on: 4th May 2014. Pp. 114–129.

Greenberg, J. and Baron, A. Robert, 2000. Behavior in organization, Prentice Hall, New York. Available on: http://pakacademicsearch.com/journals/68/2/2/12049. Retrieved on: 4th May 2014.

Hameed, A. and Amjad, S., 2009. The Impact of Office Design on Employees' Productivity: A Case Study of Banking Organizations of Abbottabad, Pakistan. *Journal of Public Affairs, Administration and Management*. Vol.3, No. 1. Available on: www.scientificjournals.org/journals2009/articles/1460. Retrieved on: 4th May 2014. Pp. 1–13.

Keeling, B. Lewis., Kallaus, N. Francis., 1996. Administrative Office Management. 11th Edition, Ohio: International Thompson Publishing, Available on: http://makassar.lan.go.id/dokumen/artikel%20Evie.pdf. Retrieved on: 4th May 2014.

Kinglsley, A., 2012. The Impact of Office Ergonomics On Employee Performance; A Case Study Of The Ghana National Petroleum Corporation (GNPC), Institute of Distance Learning, Kwame Nkrumah University. Available on: ir.knust.edu.gh/bitstream/123456789/.../1/ASANTE%20KINGSLEY. Retrieved on: 4th May 2014.

Kwallek, N., 2002. Color in Office Environment. *Informe Design*. Vol. 5, No. 1. Regents of the University of Minnesota. Available on: www.informedesign.org/_news/jan_v05r-p. Retrieved on: 4th May 2014. Pp. 1–6.

Malholtra, K. Naresh, 2009. *Basic Marketing Research; A Decision-Making Process*, 3rd Edition. Upper Saddle River: Prentice – Hall, New Jersey.

Powell, J. Bradford. and Weinberg, L., 2002. The Ergonomics of Light. *Buildings*. Vol. 96, No. 10, Oct: 24. Available on: http://makassar.lan.go.id/dokumen/artikel%20Evie.pdf. Retrieved on: 4th May 2014.

Quible, K. Zane. 1996. *Administrative Office Management: An Introduction*. 6th Edition. Upper Saddle River: Prentice-Hall, New Jersey. Available on: http://www.indianjournals.com/ijor.aspx?target=ijor:zijbemr&volume=3&issue=10&article=009 Retrieved on: 4th May 2014

Quible, K. Zane, 2000. *Administrative Office Management: An Introduction*. 7th Edition. Upper Saddle River: Prentice-Hall, New Jersey. Retrieved on: http://makassar.lan.go.id/dokumen/artikel%20Evie.pdf. Retrieved on: 4th May 2014.

Saklani, A., and Jha, S., 2011. Impact of ergonomic changes on office employee productivity. *International Journal of Management Research*. Vol. 2, No. 1. Avaliable on: www.papers.ssrn.com/sol3/...cfm/SSRN_ID2443266_code1890243. Retrieved on: May 4th 2014. Pp. 57–62.

Saleem, A. Shah, A., Atif., Zaman, K., Arif, M., Shehzad, K., Ullah, I., 2012. The Impact of Interior Physical Environment on Academicians' Productivity in Pakistan Higher Education Institutes Perspectives. *Iranian Journal of Management Studies (IJMS)*. Vol. 5, No. 1. Available on: http://ijms.ir/pg/06/IJMS05102. Retrieved on: 4th May 2014. Pp. 25–46.

Sanders, S. Mark, and McCormick J. Ernest, 1992. Human Factors in Engineering and Design, McGraw Hill International. Available on: www.hsa.ie/eng/Publications_and_Forms/...Health/Ergonomics. Retrieved on: 4th May 2014.

Sekaran, U., and Bougie, R., 2009. *Research Methods for Business, A skill building approach*. 5th edition. Wiley, USA.

Sinha, E. Saaba., 2001. The skills and career path of an effective project manager. *International Journal of Project Management*. Vol. 19. Available on: http://eprints.usm.my/16071/1/Arman_Abdul_Razak. Retrieved on: 4th May 2014. Pp. 1–7.

Snell, S. and Bohlander, G., 2010. *Principle of Human Resource Management*, 15th edition, South – Western Cengage Learning, Canada.

Tribunnews.com, 2014. Available on: http://medan.tribunnews.com. Retrieved on: 4th May 2014.