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Determine the Factors Affecting on Productivity

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Abstract

The paper describes about the investigating, examining and the analyzing of working conditions and its effect on employees in an industrial organization on their rate of productivity. As a matter of fact, no organization would be able to achieve its goals if the matter of productivity is neglected. The factor which affect on productivity includes the working environment, safety, participation in decision making, career development /progression, heath etc.
 Various methods were adopted in collection of data and analyzing data, the sources of data collection include primary source and secondary. The data collected were analyzed using T-test analysis.

Keywords— Productivity, T-test, hypothesis

Introduction

The paper describes about the investigating, examining and the analysing of working conditions and its effect on employees in an industrial organization on their rate of productivity. Productivity is a vital and major concept to every industrial organization. As a matter of fact, no organization would be able to achieve its goals if the matter of productivity is neglected. It has also been argued that labour aspect is the most vital without which the organization would be far from reaching the desired goals. So many thing come into play which affect workers in the process of their daily activities as far as working condition are concern. These challenges often force industrial workers to feel concerned about some important working conditions such as the pay, the physical environment, safety, participation in decision making, career development /progression, heath etc. Various methods were adopted in collection of data and analysing data, the sources of data collection include primary source and secondary. The data collected were analysed using T-test analysis.

Sampling of T-Test Analysis

Thirty (30) participants for the study were randomly selected from the two companies thus:
They were made up of 24 (86.66 %) males and 4 (13.33%) females. The age range was between 21 and 59 years.
Osuala (1987) defines a hypothesis as a conjectural statement which shows the relationship between two or more variable. The hypothesis is usually in a declarative sentence form. A hypothesis could either be null (H_O) hypothesis for this study is as stated below:-

$H_O{}^1$:   That there is significant relationship between employees working conditions and their level of productivity.

Hi^1:   That there is no significant relationship between employees working condition and their level of productivity.

$H_O{}^2$:   That there is significant relationship between incentive system and the employee productivity.

Hi^2:   That there is no significant relationship between incentive system and the level of productivity.

Ho^3:   That there is significant relationship between communication and the level of productivity.

Hi^3:   That there is no significant relationship between communication and the level of productivity.

Ho^4:   That there is significant relationship between employees job satisfaction and their productivity.

Hi^4:   That there is no significant relationship between employee job satisfaction and their productivity.

Ho^5:   That is significant relationship between employee participation in decision making and their productivity level.

Hi^5:   That there is no significant relationship between employee participation in decision making and their productivity level.

The t-distribution (named after W.S Gosset, it discover who wrote under the name student) was used to statistically test the hypothesis. The formula for finding t-test is as follows.

Test Statistics = t* $\frac{X-\mu}{\Theta}$

$$\bar{X} = \frac{\sum FX}{\sum F}$$

$$\mu = \bar{X} + 2.045(\Theta)$$

$$\Theta = \frac{SD}{\sqrt{\sum F}}$$

Where:

$\bar{X}$ = Sample mean
μ = Assumed population mean
θ = Standard error
f = Frequency
X = Assumed value
SD=Standard deviation
t*= Calculated t

The analytical techniques adopted in T-test.

TABLE 1: GENDER OF THE RESPONDENT (SURVEY)

	Number	Percentage
Male	26	86
Female	4	13.33
Total	30	100

The   data shown in table one (1)   reveals   that 26(86%)of the respondents are   male   while 4(13.33%) are female, this means that the number of male workers is greater than that of the female, considering the nature of work in the organization.

TABLE 2: AGES OF THE RESPONDENT (SURVEY)

	Frequency	Percentage
Valid: 18-30	4	13.33
31-40	8	26.66
41-50	12	40.00
51-60	6	20.00
Total	30	100.0

From the table, one can see that about 66.66% of the respondents are between ages of 31-50 years which is the active work force.

TABLE 3: MARITAL STATUS OF THE RESPONDENT (SURVEY)

	Frequency	Percentage
Valid: Single	10	33.33
Married	14	46.66
Others	6	20.00

Total	30	100

The data from table 3 in appendix reveals that 14 respondents (46.66%) are married this constitutes the largest percentage, while 10 (33.33) were single, 20% of the respondent is either separated or divorced.

TABLE 4: HIGHEST QUALIFICATION RESPONDENT (SURVEY)

	Frequency	Percentage
Valid: Pry.Sch	3	10.00
HSC	6	20.00
DIPLO	7	23.33
GRATUATE	10	33.33
Other s	4	13.33
Total	30	100

The result of the analysis shows that 6(20%) of the respondents are holders of HSC while 33.33% or 10 of the respondent are educated enough to bear there minds on their view about the goings on in the organization.

TABLE 5: RESPONDENT PERCEPTION OF SALARY (SURVEY)

	Frequency	Percentage
Very satisfactory	4	13.33
Satisfactory	7	23.33
Very unsatisfactory	9	30.00
Unsatisfactory	8	26.66
Just fair	2	6.00
Total	30	100.

The data from table 5 in appendix reveals that 9(30%) view perceive their salary as very unsatisfactory, 8(26.66%) of the respondent view their income as unsatisfactory, while only 4(13.33%) of the respondents are very satisfactory with their income. As earlier said, the high percentage of dissatisfaction with income by the respondent could have been occasioned by the high cost of living in the country which has really encumbered workers with heavy burden of survival.

TABLE 6: WHETHER DISSATISFACTION WITH SALARY AFFECTS RESPONDENTS PERFORMANCE (SURVEY)

	Frequency	Percentage
Valid: Yes	11	36.66
No	19	63.33
Total	30	100.

The data from table 6 shows that 11(36.66%) of respondents agree that lack of satisfaction with income after their performance while 19(63.33%) say it does not affect their performance. The larger

percentage of respondents in the latter category could still perform because of lack of job opportunities elsewhere and the fear of losing their job if they don't perform.

TABLE 7: RESPONDENTS SATISFACTION WITH THE WORKING CONDITIONS (SURVEY)

	Frequency	Percentage
Valid: Yes	10	33.33
No	20	66.66
Total	30	100

From the table 7, in appendix 20(66.66%) of the respondents are not satisfied with the working conditions in their company while 10(33.33%) are satisfied.

TABLE 8: RESPONDENTS INVOLVEMENT IN DECISION MAKING

	Frequency	Percentage
Valid: Yes	14	46.66
No	16	53.33
Total	30	100

From the table the data reveals that a larger percentage of the respondents (53.33%) say they are not involved in the decision making of the company while (46.66%) agree that they are involved.

TABLE 9: WHETHER PARTICIPATION DECISION MAKING ENHANCES PERFORMANCE (SURVEY 2012)

	Frequency	Percentage
Valid: Yes	15	50.00
No	15	50.00
Total	30	100

From table 15(50%) of the respondents agree that participation in decision making enhances performance while 15(50%) do not agree.

TABLE 10: WHETHER COMMUNICATION AFFECTS RESPONDENT PERFORMANCE (SURVEY)

	Frequency	Percentage
Valid: Yes	17	56.66
No	13	43.33
Total	30	100

From table 10, 17(56.66%) of the respondent agree that communication enhances their performance while 13(43.33) say no. This reveals that communication between management and employees is vital in an organization.

TABLE 11: WHETHER RESPONDENTS LEVEL OF JOB SATISFACTION AFFECT THEIR PERFORMANCE (SURVEY)

	Frequency	Percentage
Valid: Yes	16	53.33
No	14	46.66
Total	30	100

From table 11, a larger percentage of the respondents 53.33% argue that their level of job satisfaction affects their performance in their company. This shows a direct correlation between the satisfaction and performance in their company.

Testing of T-Test of Hypothesis

The hypothesis is tested statistically through the Student (T-Test) is employed. The T-Test is tested under the level of 95% confidence and a significant level of 5%.
The hypothesis is two tailed-positive and negative sides. Thus, the acceptance region and rejected region is as shown in the diagram below.
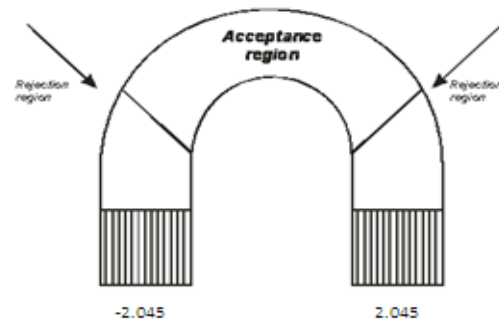
Test Statistics $= t*\frac{X-\mu}{\Theta}$

t* to it value at the 5% level of significance which is 2.045. If t* obtained is less than or equal to 2.045 then we accept null hypothesis (Ho), If t* obtained greater than 2.045 then we reject null hypothesis (Ho) and accept alternative hypothesis (Hi).

TEST OF HYPOTHESIS 1

No.	X	F	FX	X-X	(X-X)	F(X-X)
Strongly Agreed	5	9	45	1.13	1.2769	11.4925
Agree	4	12	48	0.13	0.0169	0.2028
Undecided	3	6	18	-0.87	0.7569	4.5414
Disagree	2	2	4	-1.87	304969	6.9938

Strongly Disagree	1	1	1	-2.87	8.2369	8.2369
Total		30	116			31.467

$$\bar{X} = \frac{\sum FX}{\sum F} = \frac{116}{30} = 3.87$$

Calculated Value t. Hypothesis 1

$$t^* = \frac{\bar{X} - \mu}{\theta}$$

$\bar{X}$ = Sample mean
μ = Assumed population mean
Θ = Standard Error
SD = Standard Deviation
t* = Calculated t

$$\bar{X} = \frac{\sum FX}{\sum F}$$

$$\mu = \bar{X} + 2.045(\Theta)$$

$$\Theta = \frac{SD}{\sqrt{\sum F}}$$

$$SD = \sqrt{\frac{\sum F(X - \bar{X})}{\sum F}}$$

$$SD = \sqrt{\frac{31.467}{30}}$$

$$SD = 1.0241$$

$$\Theta = \frac{SD}{\sqrt{\sum F}}$$

$$\Theta = \frac{1.0241}{\sqrt{30}}$$
$$\Theta = 0.186$$
$$\mu = \bar{X} \pm 2.045 (\Theta)$$
$$\mu = 3.87 + 2.045 (0.186)$$
$$3.87 + 0.38037$$
$$= 4.25037$$
$$3.87 - 2.045 (0.186)$$
$$3.87 - 0.38037$$
$$= 3.4896$$
$$t^* = \frac{\bar{X} - \mu}{\Theta}$$

$$t^* = \frac{3.87 - 4.25037}{0.186}$$
$$t^* = \underline{-2.045}$$
Or
$$= \frac{3.87 - 3.4896}{0.186}$$

$$= \underline{2.045}$$

Result

T-Test is equal to 2.045 on both sides. Based on our decisions that, we accept Ho when it is less than or equal to 2.045 and Hi when it is greater than 2.045. Therefore, the null hypothesis (Ho) is accepted. Thus, the statement of (Ho[1]) is factual. There is significant relationship between employees working condition and their level of productivity.

HYPOTHESIS 2

No.	X	F	FX	X-X	(X-X)	F(X-X)
Strongly Agreed	5	8	40	1.4	1.96	15.68
Agree	4	11	44	0.4	0.16	1.76
Undecided	3	5	15	-0.6	0.36	1.8
Disagree	2	3	6	-1.6	2.56	7.68
Strongly Disagree	1	3	3	-2.6	6.76	20.28
Total		30	108			47.2

$$\bar{X} = \frac{\sum FX}{\sum F} = \frac{108}{30} = 3.6$$

Calculated Value t. Hypothesis 2

$$t^* = \frac{\bar{X} - \mu}{\Theta}$$

$\bar{X}$ = Sample mean
μ = Assumed population mean
Θ = Standard Error
SD = Standard Deviation
t* = Calculated t

$$\bar{X} = \frac{\sum FX}{\sum F}$$
$$\mu = \bar{X} + 2.045 (\Theta)$$

$$\Theta = \frac{SD}{\sqrt{\sum F}}$$

$$SD = \sqrt{\frac{\sum F(X - \bar{X})}{\sum F}}$$

$$SD = \sqrt{\frac{47.2}{30}}$$

$$SD = 1.2543$$

$$\Theta = \frac{SD}{\sqrt{\sum F}}$$

$$\Theta = \frac{1.2543}{\sqrt{30}}$$

$\Theta = 0.2290$

$\mu = \bar{X} \pm 2.045 \ (\Theta)$

$\mu = 3.6 + 2.045 \ (0.2290)$

$\quad 3.6 + 0.468$

$\quad = 4.0683$

$\mu = 3.6 - 2.045(0.2290)$

$\quad 3.6 - 0.468$

$\quad = 3.13169$

$t^* = \frac{\bar{X} - \mu}{\Theta}$

$t^* = \dfrac{3.6 - 4.0683}{0.2290}$

$t^* = \underline{-2.045}$

$t^* = \dfrac{3.6 - 3.13169}{0.2290}$

$\quad = \underline{2.045}$

Result: Since T-Test is equal to 2.045 on both sides. Based on our decisions that, we accept Ho when it is less than or equal to 2.045 and Hi when it is greater than 2.045. Therefore, the null hypothesis (Ho) is accepted. Thus, the statement of (Ho^2) is factual. There is significant relationship between incentive system and employee performance.

Conclusion

The working condition in an essential in ensuring employees performance in organization. This is because the availability of factors such as a conducive working environment, adequate incentive likes promotion, good pay, and employee participation in decision making.

The attainment of optimal employees' performance and organizational goals is the prime responsibility of both the management and employee in an organization. Management of an organization must ensure that working conditions of employees are conducive, while the workers on the other hand must ensure that they give their best at work for the organization to attain its goals.

References

[1] Statistical Quality Control by Douglas H. W. allan

[2] Adebisi; M.A. (1989): Productivity as a function of incentive system; A study of an industrial establishment in Lagos Nigeria. A paper presented Ilorin journal sociology

[3] Herzberg etal (1959): The motivation to work, New York Wiley and sons.

[4] Alexander; H. (1982): Modern business report on how to increase productivity, New York.