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## A STUDY TO MEASURE IMPACT OF ERGONOMICS ON EMPLOYEE ENGAGEMENT AMONG FACULTIES

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### ABSTRACT

The success of the organization depends wholly on Ergonomics and Employee Engagement which are again interlinked to each other in some or other aspects. To study Ergonomics and employee Engagement the employees working in the college present study has been conducted. The purpose of the study is to measure the impact of Ergonomics on Employee Engagement of the working staff of the college. The study selected 119 working office employees of different colleges as samples to attain the objective. To obtain the results, a standardized questionnaire has been used. For Ergonomics {self-structured}, Employee Engagement {adapted from the Schaufeli and Bakker(2003)}. The study used Reliability, Descriptive Statistics, and Regression Analysis to measure the impact of Ergonomics on Employee Engagement. From the data analysis, the study concluded that office employees of colleges have a better working environment and are satisfied with the content of the Job, moreover it leads to Employee Engagement.

**KEYWORDS:** Ergonomics, Employee Engagement, employee retention, employee absenteeism, employee turnover.

### INTRODUCTION

The word ergonomics comes from the Greek word 'ergon' which means work and "nomos" which means laws. It is fundamentally the "Laws of work" or we can say "science of work". It is the study of people or humans in their working environment. Ergonomists map out the work which is the best fit for the employee. The main aim of ergonomics is to eliminate the discomfort and the possibility of risk of injury due to work. It is the process of designing or scheduling the workplaces, products, and systems to fit the people and systems so that they



fit the employee who uses them. The employees are becoming more health-conscious and looking for a hygienic working environment whereas leaders on the other hand have high expectations from workers. The workers until and unless they found the workplace best fit for them when they found everything resource material, tools, equipment viz. on the suitable place they feel more inclined towards the working environment. The discipline of ergonomics goals to acknowledge the interaction among humans and other elements of a system to boost human well-being and complete system performance by implementing theory, principles, data, and various ways to design (Wegge & Zimmerman, 2007; Dul & Neumann, 2009; Punnett et al., 2009). Ergonomics assists the employees to be happy and feel secure in terms of both mental and physical well-being, which leads to more employee participation in the organization and provides a way of employee engagement with the organization.

Employee engagement steers the employees' efforts for the organization and enhances their enthusiasm which precedes better production and ultimately gives the way for greater profit as well as reduces the staff absenteeism and dissatisfaction.

The study of ergonomics leads to more productive and sustainable employees increase productivity, morale, and reduce absenteeism. The purpose of the study is the health and sitting posture issues that are faced by the working staff in the organization.

## **LITERATURE REVIEW**

### **EMPLOYEE ENGAGEMENT**

Employee engagement is the mental and emotional connection of employees with the organization. In the study of Vermooten (2018) the objective of the study was to gain an in-depth understanding of the engagement phenomena among public school teachers. A mixed research method was used to collect both qualitative and quantitative survey 37 interviews were conducted with fee school teachers and follow-up was conducted with 28 fee school teacher and a report of a web-based survey of 353 teachers were conducted. The study offers valuable insight into the most salient contextual, organizational, job, and individual antecedents of variance in employee engagement among public school teachers.

To understand the factors which influence the behavioral expression of the organization. The study was conducted on 400 working teachers by Na- Nan et.al. (2016) and the statistics



used for testing used structural model equation analysis to test the consistency of the model created by the research and found that job characteristics and organizational climate have an influence on organizational behavior via employee engagement.

Job satisfaction, well-being, and emotional intelligence had positive effects on the teachers' employee engagement and the objective of this study was to analyse the effects of job satisfaction, well-being, and emotional intelligence on the teachers' employee engagement. For this survey was conducted on 65 teachers through the survey (Sudibjo and Sutarji) (2020).

Shokunbi (2016) studied the antecedents among civil servants of employee engagement. An interview was conducted with 28 teachers about factors that get them engaged at work and they concluded that passion for the job, availability of materials for the job, working environment, the relationship between employees, training, and remuneration.

Employee engagement partially mediates the relationship between the turnover intentions and HRM Practices of school teachers. The study has been conducted on the mediating effect of employee engagement in the relationship between human resource planning and teachers' turnover intentions. For this used a multi-stage random method to choose a sample size of 400 teachers from 40 schools (Kamau) (2020).

To understand the relationship between occupational stress, employee engagement, and turnover intention a study was conducted, and the survey was conducted on primary school teachers and showed that teachers who experience high levels of work stress had low employee engagement and high turnover intention (Salahudin et.al. (2016).

Among private school teachers the role of emotional labor, work engagement, and cognitive dissonance a study was conducted by Mangi et.al. (2021) and interviewed with cluster sampling techniques concluded that emotional labor has a significant positive impact on work engagement.

Ariani (2013) conducted a study that tested the relationship between employee engagement, organizational citizenship behavior, and work behavior (WB). For this, 507



participants were taken into consideration and showed a difference in the mean score of OCB and WB between males and females.

## **ERGONOMICS**

Ergonomics can assist in increasing the productivity of managerial brainpower and the aim is to eliminate all perpetual and mental loading that arises from the paper workload.

Bayir and Keser (2008) determined the information technology teacher coordinator and their working environment and 9 sub-dimensions were used in terms of ergonomics and concluded that “typing without placing their elbows to the desk”, “making telephone calls by placing the phone between their head and their shoulder at the same time while using keyboard”.

Dockrell et.al. (2009) objective of the study was to investigate the sources and nature of education about computer-related ergonomics of school teachers. A survey was conducted that suggested that computers are widely available and often used by students and teachers.

The micro ergonomic issues that are faced by school students due to the mismatch between their body size and desk. For providing school ergonomics in a new direction, macro ergonomics for schools have been introduced to make ergonomics to be a part of national education (Legg and Jacobs) (2008).

To understand whether photography-assisted calibration training would better interrater reliability among dental hygiene staff for ergonomics evaluation. A study has been designed with a convenience sampling of 11 staff employees and all pre-training and post-training were provided to measure the effects of interchange reliability and concluded that photography-assisted training resulted in improved agreement among the staff members (Partido) (2017).

The architectural stair design and the related ergonomics Ningrum and Haqi (2020) described cross-sectional design with descriptive analysis and found that everything as per recommendation but the tread's depth, the width of stairs, handrail's diameter and the height, as well as the lighting of the stairs, must be improvised to make the stairs valuable.



Abarghouei and Nasab (2012) Total Ergonomics intervention evaluations have shown that the positive effects of applying ergonomics knowledge can result in increased productivity and reduced musculoskeletal disorder and the objective of the study for this purpose was ergonomics leads to improved productivity and result in better working condition for office employees and a body mapping questionnaire has been used.

The study of Karlton et.al. (2017) developed that there was a strong potential for developing the theory, applications, and methodological aspects of human technology organizations. To objective was to understand the role of human technology organizations in the development of the best-fit work system.

## **ERGONOMICS AND EMPLOYEE ENGAGEMENT**

Without a proper ergonomics system, it becomes impossible to manage any other resources as the most important factor human when felt unsatisfied with the work culture then it leads to poor employee engagement. Christy (2019) has been used secondary data for his studies and suggested that ergonomics leads to employee engagement, better employee retention.

The aim of ergonomics to analyse the best fit environment to optimize the performance. Jauregui (2018) study objective was to examines the impact of ergonomics on employee engagement. And for the same data has been collected through a questionnaire survey.

Magnavita (2017) the objective of the study was the aging factor which creates a challenging job of health and welfare of workers and a reference for old workers related particular issues. So, there must be a holistic approach that will be followed.

## **RESEARCH METHODOLOGY**

### **Objectives of the study**

- To Study the Ergonomics and Employee Engagement among the employees working in the college.
- To measure the impact of Ergonomics on Employee Engagement among the employees working in the college.



### **Sources of Data**

The primary data for the research has been collected from the college staff.

### **Research Design**

The research study followed a descriptive research design to study the relationship between Ergonomics and Employee Engagement.

### **Sampling**

For this study, 119 college teachers have been taken as samples. Both male and female employees have been included in the sample. To obtain the objective convenience, sampling has been used.

### **Tools of Data Collection**

To study the impact of Ergonomics on Employee Engagement, a standardized questionnaire has been used.

For Ergonomics {self structured}, Employee Engagement{ adapted from the Schaufeli and Bakker(2003)}.

The questionnaire has been distributed among 250 employees after data cleaning treatment and the process study selects 119 college teachers as a sample.



## RESULTS AND DISCUSSIONS

### Reliability

**Table 1.1**

#### Reliability Statistics

Cronbach's Alpha	N of Items
.850	27

From above the reliability statistics on variables, the value of Cronbach's Alpha was .850 which was greater than .70, and satisfied the condition that a scale should consistently reflect the construct it measured.

### Descriptive statistics

**Table 1.2**

STATEMENTS	1	2	3	4	5	6	7
1. At my work, I feel bursting with energy	3	8	18	31	34	24	1
2. I find the work that I do full of meaning and purpose.	11	24	19	20	20	18	7
3. Time flies when I am working.	4	16	19	14	33	17	16



4. At my job, I feel strong and vigorous.	11	19	20	20	23	19	7
5. I am enthusiastic about my job.	8	18	23	18	21	22	9
6. When I am working, I forget everything else around me.	11	15	22	13	23	21	14
7. My job inspires me	10	23	19	16	25	20	7
8. When I get up in the morning, I feel like going to work.	6	16	20	20	22	22	13
9. I am happy when I am working intensely.	8	17	20	21	17	29	7
10. I am proud of the work that I do.	6	19	15	21	26	19	13
11. I am immersed in my work.	3	15	16	20	29	22	14
12. I am	11	18	16	19	22	24	9





continue working for very long periods at a time.							
13. To me, my job is challenging.	6	20	19	20	15	26	13
14. I get carried away when I am working.	20	15	17	22	20	14	11
15. At my job, I am very resilient, mentally.	11	19	19	19	22	18	11
16. It is difficult to detach myself from my job.	10	11	23	19	17	19	18
17. At my work, I always persevere, even when things do not go well.	8	15	20	32	19	15	10

From the above, it has been concluded that the faculty moreover feel happy and proud of the work they do or perform.

**Table 1.3**



STATEMENTS	1	2	3	4	5	6	7
Have there been any worker complaints concerning ergonomic issues?	16	30	24	15	19	11	4
Do employees perform high repetition tasks?	11	13	15	20	26	20	14
Do employees perform tasks with an awkward back angles to be held for extended period of time?	12	15	15	21	19	26	11
Do employees perform task with an awkward elbow angles to be held for extended period of time	6	20	17	23	24	16	13
Do employees perform task with an awkward elbow abduction angles to be held for extended period of time?	10	14	12	14	27	21	21
Do employees perform task with an awkward wrist	10	9	22	27	16	23	12



flexion angles to be held for extended period of time							
Do employees perform task with an awkward wrist extension angles to be held for extended period of time?	10	18	14	18	24	23	12
Do employees perform task with an extreme reaching distance for an extended period of time?	7	10	17	23	21	29	12
Do employees perform task with an odd workstation height for an extended period of time?	7	14	20	17	20	22	19
Are high impact tools used routinely?	6	11	14	24	26	26	12

From the above Descriptive Statistics, it has been interpreted that, the teachers never perform the task with awkward elbow angles for an extended period.



**Stepwise Regression analysis for the impact of Ergonomics on Employee Engagement.**

**Table 1.4**

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.892 <sup>a</sup>	.796	.795	.90835

a. Predictors: (Constant), EE

**Table 1.5**

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	553.745	1	553.745	671.131	.000 <sup>b</sup>
	Residual	141.916	172	.825		
	Total	695.660	173			

a. Dependent Variable: E

b. Predictors: (Constant), EE

**Table 1.6**

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.273	.362		6.283	.000
	E	2.694	.104	.892	25.906	.000

a. Dependent Variable: E



Table 1.4 showed a model summary that signified goodness of fit. R square stands for the coefficient of determination which determined the variation caused by Job satisfaction. Adjusted R square provides a more significant value for a variance here is 79.5% (.795). Table 1.5, is the ANOVA Table that revealed the significance of the model. Table 1.6, is the Coefficient Table, which showed the coefficients of the independent variable and revealed the significance of the independent variable.

## **CONCLUSION**

The study concludes that ergonomics improves Employee Engagement among the teaching faculty. A higher degree of Ergonomics among the employees leads to improved Employee Engagement. The engagement level of employees was also influenced by workplace ergonomics. Ergonomics improves the productivity of the staff and ensure optimum utilization of Human Resource and ultimately employee feels satisfied with the organizational culture.

To study the impact of Ergonomics on Employee Engagement, a standardized questionnaire has been used.

Ergonomics ultimately helps in reducing absenteeism and employee turnover. Many factors contributed to the Employee Engagement among the office faculty of colleges which ultimately leads to Employee Engagement.

It is evident that Ergonomics leads to employee performance and provides health and workplace safety and which in turn leads to low turnover of employees and increases profitability.

As if the organization is providing such an environment where everything is arranged perfectly in the best fit interest of the employee it will reduce the stress, discomfort, and pain and it will increase the production which leads to profit for the organization.

Implementing a proactive ergonomics process presents an organization with the opportunity to add significant value to the employee well-being. To provide safeguard and



promote a better safety culture, which boosts morale, strengthens loyalty and creates more engaged employees, ergonomics is the first thing to do in the organization. From the above study, it is concluded that the staff of the college have a better working environment condition and feel satisfied with the content of the office and it leads to Employee Engagement.

Understanding the relationship between gave the basis for future research and provides benefits to organizations and individuals.

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