



## INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATION AND MANAGEMENT

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## ERGONOMICS RELATED CHANGES ON TRADITIONAL BANKS IN KERALA CONSEQUENT ON CHANGES IN TECHNOLOGY AND ITS IMPACT ON EMPLOYEES

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### ABSTRACT

*Advent of computer technology has meant greater flexibility and increased efficiency for office workers. The widespread use of computers has contributed to an exponential rise in the number of injuries owing to its user interfaces. This paper discussed the way in which the office computer monitors, keyboard, mouse etc. are arranged, lighting facilities in the office, disturbance by the sounds from IT devices, employee free time to stand up and relax, employee experience on colour combination of the office, eye problems and headache as they look long hours at computer monitor etc. The main Objective of this study is to understand employees' perception on ergonomics related changes to accommodate technological transformation of traditional banks. All traditional banks with more than hundred branches in Kerala are taken for the study. The Statistical tools of Percentage analysis, Chi-Square Test, Arithmetic Mean are used for analysis of the data. Most of the respondents have positive perception on ergonomically friendly environment of the office in which they work.*

### KEYWORDS

Computer technology, ergonomically friendly environment.

### INTRODUCTION

Ergonomics deals with a system of interacting components which includes the worker, the work environment both physical and organizational, the task and the workspace. The goal of ergonomics is to ensure a good fit between the workers and their job, thereby maximizing worker comfort, safety, productivity and efficiency.

Banking and financial systems have been revolutionized by the ongoing progress of information and communications technology on a global scale. The twin pillars of modern banking development today are Information technology and Electronic funds transfer systems. Even though this phenomenon has largely permeated throughout the Indian banking system, technologies suitable for Indian conditions have also been introduced.

Public sector banks and the existing private sector banks (old private sector banks) faced challenges in the form of competitive pressures and changing customer demands both from foreign banks and new private sector banks. Most of the public sector and old private sector banks (classified as traditional banks) had a number of legacy issues to tackle in their existence of more than a century. While the new private sector banks could adopt the best practices and implement the latest technology in their operations, the foreign banks acquired the practices and technology akin to their host countries within the regulatory framework of India. Influenced by the varied practices and culture of host countries, this segment of banks operating in India was found to be quite heterogeneous in their operations and performance.

Faced with the threat of competition from the foreign and new private sector banks (classified as modern banks), the traditional banks employed a number of measures to improve their operational efficiency, meet customer expectations and reduce operating costs. These included going for fully automated systems (Core Banking Solution based operations) preceded by business process reengineering (BPR), offering VRS to its employees, training and retraining of staff, lateral recruitment of specialists, emphasis on marketing, advertising, customer relationship management and improving brand image, diversification of activities, introduction of electronic based multiple service delivery channels, setting up of back offices and data centers, business process outsourcing. Some of these banks have undergone rigorous restructuring exercises with the involvement of international consulting agencies to adopt the best international practices and remove bottlenecks in their operations.

### BANKING STATISTICS OF KERALA

As on 31 March 2007 there were 51 Commercial Banks with 3667 Branches in the State. This is including 6 State Bank group, 19 Nationalised Banks, 24 other commercial Banks and 2 Regional Rural banks (RRBs). As on 31 March -2007, a total of 43454 employees work in commercial banks in Kerala of which 15211 belong to officer category and 19671 to the clerical cadre. The rest are subordinate staff.

### OBJECTIVES OF THE RESEARCH

Objective of the research is to study Employees' perception on ergonomics related changes to accommodate technological transformation of traditional banks.

### ERGONOMICS RELATED CHANGES CONSEQUENT ON CHANGES IN TECHNOLOGY

Mohsen Attaran and Brian D. Wargo (1999) and Marilyn P. Rowan and Phillip C. Wrigh (1994) point out that the advent of computer technology has meant greater flexibility and increased efficiency for office workers. However, automation does not eliminate human role but rather changes it, often in unforeseen ways and with unanticipated consequences. The continuous use of computers in the workplace means increasingly sedentary jobs. Employees are moving less as they work. The widespread use of computers has contributed to an exponential rise in the number of injuries owing to its user interfaces—video display terminal (VDT), keyboard and mouse. The recent influx of health problems such as carpal tunnel syndrome, cumulative trauma disorders, and repetitive strain injuries caused by inadequate design of the workplace environment has militated against the increased levels of office productivity originally anticipated. This will individually influence the employees. There is no serious research nor are discussions widely conducted in these areas in the Indian context.

This study examines the employees' experience on changed office layout of banks due to automation. The following elements are taken into consideration to examine the same.

1. Office seating arrangements and its comfort
2. The way in which the office computer monitors, keyboard, mouse etc. are arranged.
3. Lighting facilities in the office
4. Disturbance by the sounds from IT devices like printer, Computer, Mobile phone etc.
5. Employee free time to stand up and relax
6. Employee perception on neatness of office cabin and premises
7. Employee experience on colour combination of the office.
8. Eye problems as they look long hours at computer monitor.
9. Headache as they look long hours at computer monitor.

**UNIVERSE OF THE STUDY**

All employees belonging to clerical and above categories in the banking sector of Kerala constitute the Universe of the study.

**SAMPLING DESIGN**

All public and private sector banks with more than a hundred branches in Kerala are taken for the study. The researcher uses ‘Stratified random sampling method’ to determine the sample size for the current research .Total sampling size is 250.

**SURVEY QUESTIONNAIRE**

Primary data was collected from 350 employees belonging to officer and clerical cadres of Traditional banks through a Survey questionnaire.

**ANALYSIS OF DATA**

The data collected is further classified on the basis of age, experience, educational qualification, gender, ownership, and area of the bank for further analysis. The Statistical tools of Chi-Square Test, Percentage analysis, Arithmetic Mean are used for analysis of the data5.

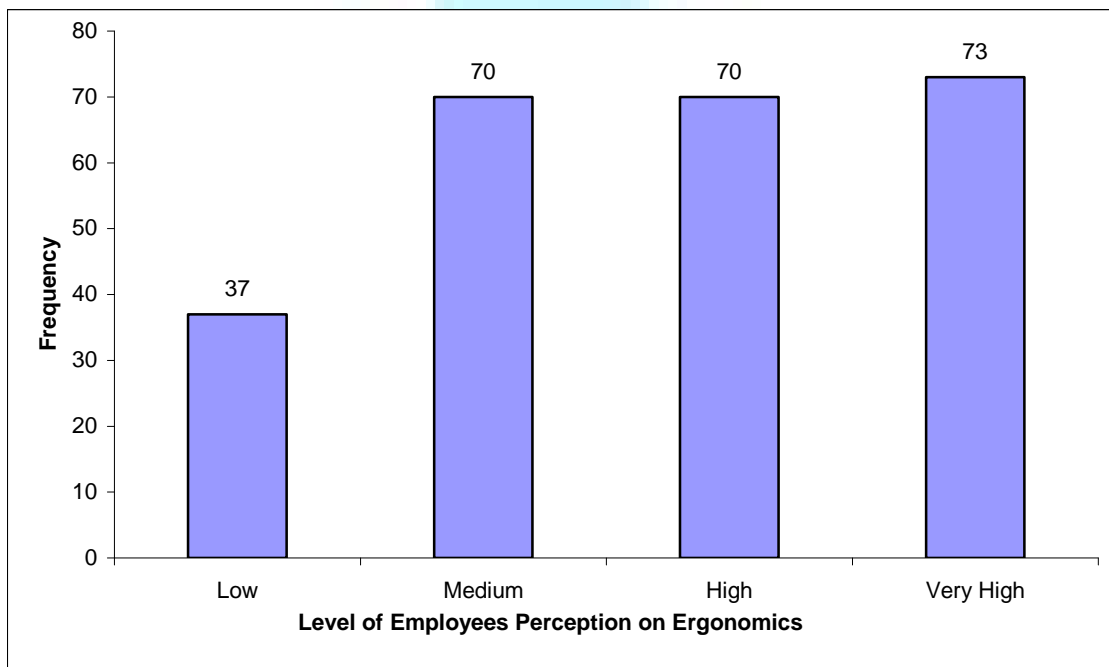
**ANALYSIS AND DISCUSSION**

**TABLE I.I: EMPLOYEES’ PERCEPTION OF ERGONOMICALLY FRIENDLY ENVIRONMENT**

perception of ergonomically Friendly environment	Frequency	percentage
Low	37	14.8
Medium	70	28.0
High	70	28.0
Very High	73	29.2
Total	250	100

14.8 % of the respondent s expressed the opinion that Employees’ perception of ergonomics in new techno savvy environment is low while 28% of the sample opined that Employees’ perception on ergonomically Friendly environment is at a medium level.

**FIG I.I: EMPLOYEES’ PERCEPTION OF ERGONOMICS IN A TECHNO SAVVY ENVIRONMENT**



**TABLE 1.2: EMPLOYEES’ PERCEPTION ON CHANGING OFFICE LAYOUT OF BANKS TO ACCOMODATE TECHNOLOGICAL TRANSFORMATION**

Sl.no	Indicators	Total Score	Mean	SD
1	Conformability of office seating arrangements.	1275	5.1	1.6
2	An office computer monitor where , key board, mouse etc... are arranged in a most comfortable way	1233	4.9	1.6
3	Sufficient lighting facilities in the office.	1318	5.3	1.6
4	Disturbance from the sounds from IT devices like printer, Computer, Mobile phone etc. not felt.	1318	5.3	1.6
5	Availability of enough time to get up and relax in the office.	1018	4.1	2.1
6	Neatness of the office cabin and premises	1210	4.8	1.8
7	Colour combination of walls providing Calm and Cool ambience in the office.	1173	4.7	1.9
8	Absence eye problems related with spending long hours in front of computer monitor.	1100	4.4	2.0
9	Absence of other ailments as a result of spreading long hours spending in front of computer monitor	1100	4.4	2.0
	Average	1194	4.8	1.8

A seven point Scale is used to understand ergonomic related issues of employees in a technology dominated environment. Seven represents for a strong positive perception on changes and one represent s a strong negative perception on changes. Nine indicators are used to measure the influence.

Overall ergonomic friendly environment score is 1194, which indicates that employee’s are positive perception on ergonomic friendly environment. Mean and Standard deviation are 4.8, 1.8 respectively.

Employees are satisfied with lighting facilities and noise free environment in the office compared to the other indicators with a total score of 1318 with a Mean and S.D of 5.3 and 1.6. There is moderate satisfaction with seating arrangements in the office and armaments of computer monitor, keyboard, mouse and neatness in the office cabin with total score of 1275, 1233 and 1210 respectively. Employees are not fully free from ailment as they are spending long hours before computers in the office, total scores is 1100 for the same mean and S.D of 4.4, 2.0 respectively.

**ERGONOMIC FRIENDLY ENVIRONMENT AND DEMOGRAPHIC VARIABLES**

**TABLE I.3: RELATIONSHIP BETWEEN ERGONOMICS FRIENDLY ENVIRONMENT AND DESIGNATION**

n (%)	Total 250(100.0)	Low 37(100.0)	Medium 70(100.0)	High 70(100.0)	Very High 73(100.0)
Employees Designations					
Officer	133(53.2)	18(48.6)	41(58.6)	43(61.4)	31(42.5)
Clerk	117(46.8)	19(51.4)	29(41.4)	27(38.6)	42(57.5)

NS-Not Significant

Chi-square test is used to test the association with employees' ergonomically friendly environment and Employees designation. The chi-square value is 6.401, which is not significant at 0.05 levels. From this can be inferred that the ergonomic friendly environment and Employees designations are not associated.

**TABLE I.4: RELATIONSHIP BETWEEN INFLUENCES OF ERGONOMICS RELATED CHANGES AND OWNERSHIP OF BANK**

n (%)	Total 250(100.0)	Low 37(100.0)	Medium 70(100.0)	High 70(100.0)	Very High 73(100.0)
Ownership of bank <sup>NS</sup>					
Public Sector	132(52.8)	20(54.1)	39(55.7)	40(57.1)	33(45.2)
Private Sector	118(47.2)	17(45.9)	31(44.3)	30(42.9)	40(54.8)

NS-Not Significant

Chi-square test used to know the association between employees' perception on ergonomically friendly environment and ownership pattern of the bank. The chi-square value is 2.48, which is not significant at 0.05 levels. From this it is inferred that the employees' perception on ergonomically friendly environment and ownership of the bank are not associated.

**TABLE I.5: RELATIONSHIP BETWEEN INFLUENCES OF ERGONOMICS RELATED CHANGES AND AGE**

n(%)	Total 250(100.0)	Low 37(14.8)	Medium 70(28.0)	High 70(28.0)	Very High 73(29.20)
Age*					
Upto 25	25(10.0)	9(24.3)	8(11.4)	5(7.1)	3(4.1)
26-35	27(10.8)	6(16.2)	8(11.4)	10(14.3)	3(4.1)
36-45	59(23.6)	5(13.5)	18(25.7)	18(25.7)	18(24.7)
46-55	139(55.6)	17(45.9)	36(51.4)	37(52.9)	49(67.1)

\*p-value < 0.5

Chi-square test used to test the employees' perception on ergonomically friendly environment and age. The chi-square value is 20.26, which are significant at 0.05 levels. Hence it is inferred that the employees' perception on ergonomically friendly environment in the banks and age of employees are associated in Kerala as an impact of technological transformation.

**TABLE I.6: RELATIONSHIP BETWEEN INFLUENCES OF ERGONOMICS RELATED CHANGES AND LEVEL OF EDUCATION**

n (%)	Total 250(100.0)	Low 37(100.0)	Medium 70(100.0)	High 70(100.0)	Very High 73(100.0)
Level Of Education <sup>NS</sup>					
Degree	127(50.8)	18(48.6)	39(55.7)	32(45.7)	38(52.1)
Post Graduate	96(38.4)	13(35.1)	23(32.9)	31(44.3)	29(39.7)
Others	27(10.8)	6(16.2)	8(11.4)	7(10.0)	6(8.2)

NS-Not Significant

Chi-square test used to asses the employees' perception on ergonomically friendly environment and level of education. The chi-square value is 3.59, which is not significant at 0.05 levels. It reveals that employees' perception on ergonomically friendly environment and level of education are not associated.

**TABLE I.6: RELATIONSHIP BETWEEN INFLUENCES OF ERGONOMICS RELATED CHANGES AND GENDER**

n (%)	Total 250(100.0)	Low 37(100.0)	Medium 70(100.0)	High 70(100.0)	Very High 73(100.0)
Gender Difference <sup>NS</sup>					
Male	170(68.0)	24(64.9)	52(74.3)	42(60.0)	52(71.2)
Female	80(32.0)	13(35.1)	18(25.7)	28(40.0)	21(28.8)

NS-Not Significant

Chi-square test used to test employees perception on ergonomically friendly environment and Gender difference. The chi-square value is 3.85, which are not significant at 0.05 levels. It indicates that employees' perception on ergonomically friendly environment and Gender differences are not associated on employees of SCBs in Kerala as an impact of technological changes.



TABLE I.7: RELATIONSHIP BETWEEN INFLUENCES OF ERGONOMICS RELATED CHANGES AND WORK EXPERIENCE

n (%)	Total	Low	Medium	High	Very High
	250(100.0)	37(100.0)	70(100.0)	70(100.0)	73(100.0)
Work Experience*					
<5 years	63(25.2)	15(40.5)	20(28.6)	14(20.0)	14(19.2)
5-10	58(23.2)	3(8.1)	17(24.3)	21(30.0)	17(23.3)
10-15	94(37.6)	13(35.1)	19(27.1)	29(41.4)	33(45.2)
15-20	35(14.0)	6(16.2)	14(20.0)	6(8.6)	9(12.3)

\*p-value < 0.5

Chi-square test is used to test the ergonomic related changes and work experience. The chi-square value is 17.68, which is significant at 0.05 levels. It indicates that employees' perception on ergonomically friendly environment and work experience are associated.

TABLE I.8: RELATIONSHIP BETWEEN INFLUENCES OF ERGONOMICS RELATED CHANGES AND TYPE OF BRANCH

n (%)	Total	Low	Medium	High	VeryHigh
	250(100.0)	37(100.0)	70(100.0)	70(100.0)	73(100.0)
Type of Branch <sup>NS</sup>					
Urban	72(28.8)	8(21.6)	25(35.7)	22(31.4)	17(23.3)
Semi Urban	153(61.2)	24(64.9)	41(58.6)	41(58.6)	47(64.4)
Rural	25(10.0)	5(13.5)	4(5.7)	7(10.0)	9(12.3)

NS-Not Significant

Chi-square test is used to test the employees' perception on ergonomically friendly environment and the type of branch. The chi-square value is 5.26, which is not significant at 0.05 levels. It reveals that the employees' perception on ergonomically friendly environment and location of branch [Urban, Semi Urban, and Rural] are not associated.

## FINDINGS AND CONCLUSIONS

Percentage analysis clearly indicates that most of the respondents have positive perception on ergonomically friendly environment of the office in which they work. Only a limited number of respondents have negative view points.

Overall ergonomic friendly environment score is 1194, with Mean and Standard deviation at 4.8, and 1.8 respectively.

Employees are satisfied with lighting facilities and noise free environment in the office. Employees are not fully free from ailment as they are spending long hours before computers in the office.

Employees' perception on ergonomically Friendly environment is high.

Ergonomics has no association with Employees designation, Ownership, level of education, and Gender differences are not associated on employees of SCBs in Kerala as an impact of technological transformation.

Employees' perception of ergonomically friendly environment, and their work experiences and age are associated.

Employees' perception of ergonomically friendly environment with respect to type of branch [Urban, Semi Urban, and Rural] is not associated.

Management may ensure Office Cabin arrangements including seating arrangement, table, arrangement of computer monitor, keyboard, mouse and lighting and color combinations of walls and curtains etc. in the most ergonomic way.

Management may ensure that the employees get enough time to relax during hours of work and provide periodical medical check-up as they are spending long hours in front of computer monitor.

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