

# Organizational Ergonomics and Employee Satisfaction: Issues, Influences and Insights of Selected Firms in Udupi District

Seema Saxena

Sr. Assistant Professor (MIT), Ashwani Nivas, Matpady Road Chethana Nagar, Chanthar Brahmavara, Karnataka 576213, India

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**Abstract:** Ergonomics augmented its role in our civilization as the 'Industrial Revolution' progress with thoughts of how to amplify the production of workers by studying the work that is being done. As a result of these annotations, which at the time was called 'Scientific Management', improvements were made by auditing jobs which were being performed and the type of material and tools used to complete it, as well as a certain 'fit' which could be made that would further improve worker productivity and development. This study aims at thoughtful management need of employee Ergonomics in the Organizations of the Udupi District. It includes how key workplace elements such as workstations, computers, chairs, lighting, noise level, room temperature could be tailored to fit and improve employee health, safety and performances. This study focuses on the minimum acceptable working conditions and equipment to perform different jobs effectively in the organizations.

**Keywords:** Revolution, Scientific Management, workstations, tailored to fit.

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## 1. INTRODUCTION

Wide Spectrum: Office & Human Ergonomics. "Ergonomics is the science of human engineering, which involves scheming a workplace that fits person physical dimensions, with the purpose of preventing work-related injuries and illnesses and increase comfort and productivity"

### DEFINITION:

According to International Ergonomics Association (IEA), 2000 "Ergonomics and its human factors is the scientific restraint alarmed with the natural understanding of exchanges among humans and other elements of a system, and the line of work that applies presumption, principles, data and methods to design in order to optimize human well-being and overall system performance". Ancient Greek's fascination with the manifestation and development of the human body showed an admiration of how the human body functions and interacts with objects that are neighboring it. The word 'ergonomics' was founded in 1857 by Wojciech Jastrzebowski and really means 'the natural laws of work.

The word 'ergonomic' was formed by two Greek words 'ergon' which means work, and 'nomos' which means natural law. Wilson & Corlett, 1995 defined "Ergonomics is the practice of erudition about human characteristics and then using that indulgent to improve people's interactions with the things they use and with the environments in which they do so".

The ergonomics standards are the strategy, rules, criterion, etc that are followed to have consistency. In order that these standards are worldwide recognized, three important organizations must approve them: ISO: International Organization for Standardization, IEC: International Electro-technical Commission, ITU: International Telecommunications Union. Before Standardization, there were appalling accidents, for example; during the WWII aircraft's pilots died because the control panel was completely different in each plane.

## 2. FACTS ANALYSIS

An average person working on a computer can perform 50,000 to 200,000 keystrokes using fingers a day which is common in IT & Banking sectors every day. Overexertion falls are the most common cause of workplace injuries. An widespread of 125,000 back injuries & arthritis due to improper lifting each year. This may lead to inflammation and muscle stiffness in humans which further aggravate diseases and breakdown from the job. Also it lead to the absenteeism troubles in IT sectors.

**Table 1.1: Workman Compensation policy 1923**

Workmen's Compensation Act 1923	Health and safety	Compensation is paid if workers are injured (but low)
Factories Act 1948	Existing factory safety laws	Still employees are not fully safe (Humanics Ergonomics need is felt now for the ignored areas)

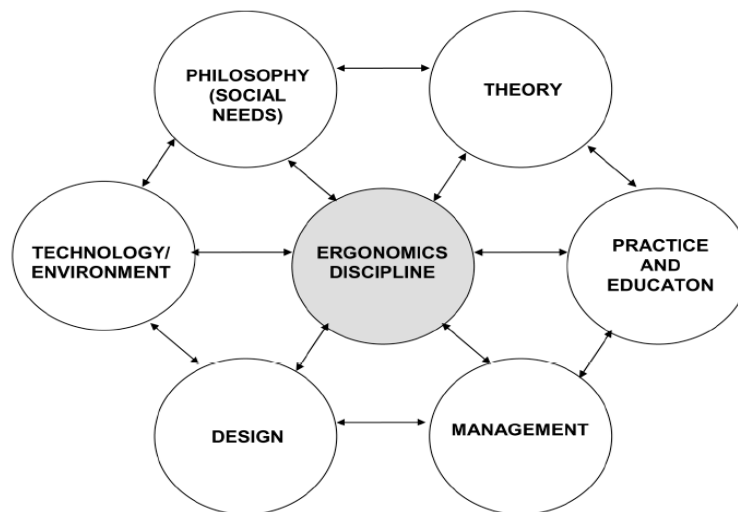


Figure 1. General dimensions of ergonomics discipline.

**Figure 1.1: Workman Compensation policy 1923 Source Bhagvathi Das Book of Compensation policies**

### ERGONOMIC STANDARDS:

- Standards are designed to ensure safety and comfort of working people.
- The huge problem is between the realistic companies and the people; importance of company alone avoids these guidelines. In some places standards at the cost of the workers are mandatory.
- Strict standards for almost anything at a work place exist in some organizations.

### EXAMPLES OF STANDARDS:

#### 1. Ergonomics Office, Human & Computer Ergonomics

- Principles in the design of work systems
- Principles related to mental workload
- guiding principle for working posture
- procedure for workplace environment

2. Ergonomics in Medicine: it is focused to the patient safety and avoids therapeutic errors. How doctors, nurse, technician advance individually and as team. How must be a health facility developed to achieve the best results.

### SOME APPLICATIONS:

- Ergonomics in Motor Vehicle transportation
- Military Ergonomic Standards
- Ergonomics guiding principle for the design, installation and use of machine tools
- Quality supervision standards
- Health forecast and organization standards
- Noise Level standards
- Eye, head, hearing protection, air quality, safety signs related standards etc.



**Figure 1.2. Medical conditions showcasing effects of Ergonomical discomforts**

Many standards are not at all up to mark for the organizations and workers get difficulty in managing and coping with them leading to stress and attritions at times.

### OBJECTIVE OF STUDY:

- To understand the relationship of organisational ergonomics setups and employee satisfactions.
- To understand working comforts of the service sector workforce in different organizations of the Udupi District.
- How Ergonomics impinge on employee's performance and employee abilities. Ergonomics role in plummeting the risk of accidents. Articles and Company Retired Employee Reviews etc
- New developments in the industry Ergonomics in IT, Retail & Banking sectors
- Difficulties & Need of Ergonomics in IT, Banking and Retail sectors.
- To relate labour and Management in different industries for a better ergonomical fit of the organizations and cordial functioning in all respects.

**SECONDARY DATA:** Injuries by adapting the work to fit in different types of Banking, IT & Retail Sectors.

Employees from three different industries of the Udupi District have been selected for the study. This study will also identify various expectations of the employees in different organizations to achieve standard, knowledge and skills necessary to perform the job well.

### 3. METHODOLOGY

Random sampling technique is used. Questionnaire will be used to understand the Behaviour, beliefs and observations of the specific group of employees in the organizations. Also allocating the preparedness for a range of Ergonomics needed for avoiding health casualties in the organizations.

- BANKING INDUSTRY –SBI (Public) & IDBI (Pvt) Total Sample Size 200
- RETAIL INDUSTRY- BIG BAZAAR , SUVIDHA STORE , Total Sample Size 200
- IT INDUSTRY –MICE & ROBOSOFT , Total Sample Size 200

**PRIMARY DATA:** Information is collected from the sample size of 600 respondents. Exploratory research design has been used.

**Table 1.2: Showing samples for the study and their respective industries**

Selected Region of study/State/ Country	District/ Location of the selected industries	Sectors/Industries considered for the study (100 each) firm
India/ Karnataka State	Udupi District	BANKING – SBI & IDBI IT- ROBOSOFT & MICE Retail – BIGBAZAAR & SUVIDHA STORE

Sample was based on the 10% of the population percentage selection for avoiding the error possibilities.

#### 4. RESEARCH STUDY

##### **BANKING SECTOR IN INDIA:**

First Bank was recognized in 18<sup>th</sup> century. Bank of Hindustan which was established in 1770 & 1 in 1829-32 & then General Bank of India in 1786 but failed in 1791. Then SBI originated as Bank of Calcutta in June 1806. Renamed as bank of Bengal in 1809 merged with Bank of Bombay & Bank of Madras in 1955 & became State bank of India in 1955. Indian Banking sector consist of 26 public sector banks, 25 private sector banks, 43 foreign banks, 56 regional rural banks, 1589 urban cooperative bank & 93,550 rural cooperative banks. Public sector controls 80% of the market. Since FY06-16, total credits unmitigated at 11.47% & reached to 1.46 trillion. Demand has grown for both corporate & retail sectors.

##### **SBI (UDUPI):**

Bank: State Bank of India, Branch: Udupi

Business Hours: Monday to Saturday 10 am to 4 pm, Mode of Payment: Cash, Cheque, Demand Draft and Net banking, Location: Udupi, State: Karnataka Pin code: 576101 Country: INDIA Address: Mythri Complex, Udupi, Karnataka - 576101

##### **ERGONOMICAL COMFORTS AT SBI BANK (UDUPI):**



**Figure 1.3. State Bank of India**

**Table 1.3 Intramural & Extramural Ergonomics**

<b>INTRAMURAL ERGONOMICS</b>	<b>EXTRAMURAL ERGONOMICS</b>
Drinking water	Housing , Canteen
Toilet ,Washing & bathing facilities	Educational facility, Fair price shops/social
Crèches, Recreation facility, Medical Aid Holiday homes	Maternity benefits insurances, Vocational training
Rest shelter	Transportation
Uniform & protective clothing's	Sport activity, Subsidies food
Cooperatives stores	Leave travel



**Figure 1.4 Paper cutters & trimmers**

- Binding machines & supplies
- Money counters & detectors
- Photo ID equipment & supplies
- Printing
- Duplicators & foil stamping
- Office support

Security - SBI Card provides 256-bit Secure Sockets Layer (SSL) encryption technology to secure your online transactions.



**Figure 1.5 Office instruments**

- Paper folders
- Paper folding machines
- Time clocks
- Phishing detection & safety of customers



**Figure 1.6 ATM Securities**

- Audio/Video Systems
- Entrance Control Systems
- Drive-Up Systems



Figure 1.7 Safe Deposit Boxes

- Safes & Vaults



Figure 1.8 Night Depositories

Banks also provide security and protection to the customers they have a email id which can be used for informing any unhealthy happenings @ [epg.cms@sbi.co.in](mailto:epg.cms@sbi.co.in)



Figure 1.9 Under Counter Cabinet

**IDBI (Region-Udupi) Bank:**



**Figure 1.10: IDBI Bank Ltd Branch Udupi**

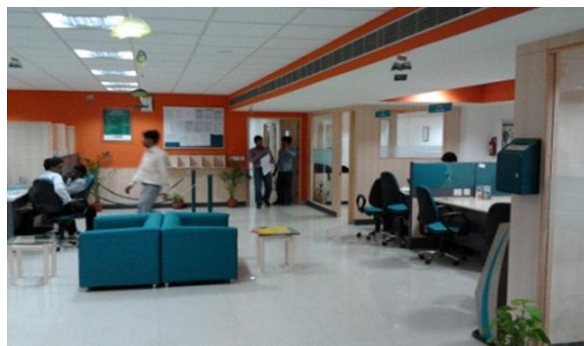
Business Hours: Monday to Saturday 10 am to 4 pm, Mode of Payment: Cash, Cheque, Demand Draft and Net banking  
 Contact: 0820/2526601, 2526701 MICR Code: - NA -IFSC Code: IBKL0000186, Bank Details: Idbi Bank Ltd  
 Udupi IBKL0000186, Location: Udupi, Udupi City: Udupi District: Udupi State: Karnataka Pincode: 576101, Address:  
 Municipal Centre, Maruti Veethika, Chittaranjan Circle, Udupi-576101, Karnataka

#### **ERGONOMICAL COMFORTS AT IDBI:**

- Magnet roller
- Magazine/display racks
- Metrologic scanners



**Figure 1.11: Photocopier spare parts & Security Systems**



**Figure 1.12 Packaging/mailing equipments**

- Laminators and supplies
- Shrink wrap/packaging machines

Customer safety is given utmost importance and weightages.



**Figure 1.13 Warehouse equipment**

- Presentation equipment
- Currency verifiers or counterfeit detectors
- Currency note banding and strapping machines

**Tube-Diverters:**

One Customer multiple teller locations. Adding a diverter provides maximum employee access and efficient customer service.

**License Plate Camera:**



**Figure 1.14 License Plate Cameras**

New, license plate camera capture on drive-up transactions, another dimension in added security.



**Figure 1.15 Currency Drawer Organizers**

Refresh your teller set-up with the latest currency drawer organizer.

**BANKING SECTOR RELATED ERGONOMICAL INJURIES:**

Bank tellers and cashiers standing on the job get leg or foot injuries. Computer users get hand, wrist, neck and shoulder inconvenience Carpal tunnel syndrome (nerves going through wrist); degenerative disk disease (backbone), myofascial pain/ myalgia (tissue covering muscles); rotator cuff syndrome (shoulder tendons)



**INFORMATION TECHNOLOGY IN INDIA:**

Information technology in India is an industry consisting of two major components: IT services and business process outsourcing (BPO). The sector has increased its contribution to India's GDP from 1.2% in 1998 to 7.5% in 2012. According to NASSCOM, the sector aggregated revenues of US Dollars 147 billion in 2015, with export revenue reported at US Dollars 99 billion and domestic revenue at US\$48 billion, growing by over 13%.

India's IT Services industry was born in Mumbai in 1967 with the enterprise of Tata Group in partnership with Burroughs. The first software export zone, SEEPZ – the precursor to the modern-day IT park – was established in Mumbai in 1973. More than 80 percent of the country's software exports were from SEEPZ in the 1980s

**ROBOSOFT (Region- Udupi):**

Robosoft Technologies - Mobile App Development Company (IOS & Android)

Software Company: Address: 217, NH 66, Santhekatte, Edapally - Panvel Highway, Kallianpur, Udupi, Karnataka 576105



**Figure 1.16 Robosoft Company**

Phone: 0820 259 3930

Hours: Open today · 8:45AM–6:15PM

Website [www.robosoftin.com](http://www.robosoftin.com) Size 201 to 500 employees

Founded 1996

Robosoft crafts mobile solutions built around the credo Emotion Engineering & Design.

Robosoft partners with several prestigious global brands and has built over 1500 apps, across platform in Consumer Mobility, Enterprise Mobility and Games & Entertainment segments. We have worked with brands like YRF, Viacom18, Sony, NDTV, Times of India, Conde Nast, Disney, Logitech, Pop Cap, Vodafone, National Geographic among others. With several award-winning globally documented apps in its portfolio Robosoft's team of designers & engineers have the depth & scale of experience to build outstanding digital products.

**ERGONOMICAL FACILITIES AT ROBOSOFT:**

**Figure 1.17 Library**

Our library has over 1100 books, on topics like general management and basic sciences to networking and soft skills.



**Figure 1.18 Workshops**

Learning is a never ending process in life. So it is at Robosoft. Aside from work-related subjects, we conduct workshops on stress management and productivity too.



**Figure 1.19 Indoor & Outdoor Games**

On our work desks or off, we take our gaming rather seriously. A chess and volleyball tournament is conducted twice every year.



**Figure 1.20 Day Care Centre**

For those fortunate members on our team with little children, the centre comes with an experienced nanny, cots and a room full of Colourful toys.



**Figure 1.21 Cab Facilities**

We have a regular cab facility on our company premises so our employees are never late to work or getting back home safely.



**Figure 1.22 Power-nap Pod**

These common air-conditioned rooms on our premises are ideal for a quick snooze or short productivity power nap. This organization is employee centric and considers and promotes everything needed for the growth and protection of the employees.



**Figure 1.23 Cafeteria**

The ideal watering hole for some food, fun and light hearted conversations our cafeteria features tea and coffee vending machines, afternoon lunch services and evening tiffin – perfect for a few minutes away from the workstation.

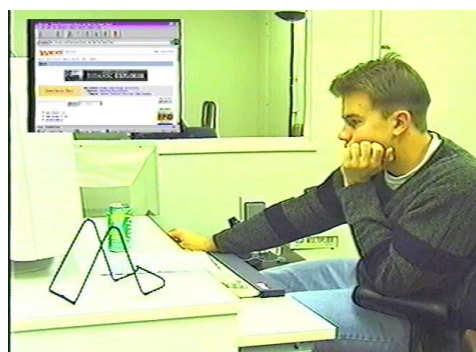
#### **MICE (Region-Udupi):**

MICE-Manipal Institute of Computer Education is part of the reputed Manipal Group, which includes the Manipal Academy of Higher Education [MAHE], Deemed University. The Manipal group operates 17 professional colleges together with four Medical, two Engineering, Nursing, Allied Health, Pharmacy, Management, Hotel Management, Communication, Information Technology, Law & Education Colleges, apart from 18 Arts & Science Colleges and 18 Schools.

MICE is a foremost computer training institute with more than 300 study centres. MICE was started in the year 1989 and today more than 20,000 students study in different centres.

Programmers, computer users trained in MICE are now working in different organisations in India and abroad.

#### **ERGONOMICAL FACILITIES AT MICE:**



**Figure 1.24 MICE Office**

**Adapt Laptops:** Laptop computers are not ergonomically designed for lengthened use. The monitor and keyboard are so close together that they cannot both be in good positions at the same time.

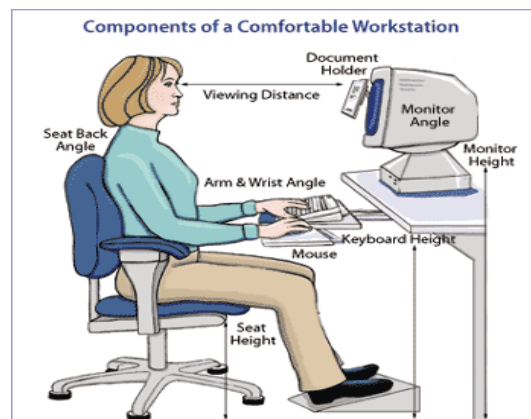
**Modifying Body Mechanics:**

Anti Glare Eyeglasses Need to make sure they fit properly to avoid tilting of head.

**Work Patterns:** Need to Reduce extended computer time whenever possible.

**Movement has many benefits:** it relaxes tissues, lubricates joints and prevents stiffness, improves circulation, reduces fatigue, and builds stamina.

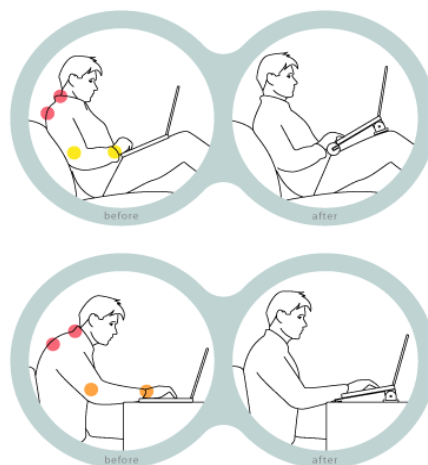
Neck/Shoulders, Back, Hands/Wrists, Feet, Eyes related Dangers and Risks

**COMPUTER RELATED INJURIES:**

**Figure 1.25 Posture & injuries**

- Cumulative Trauma Disorders (CTDs) defined as the excessive wear and tear on tendons, muscles and sensitive nerve tissue caused by continuous use over an extended period of time.
- Repetitive Stress Injuries (RSIs) Repetitive stress injuries happen when too much stress is placed on a part of the body, causing problems like swelling, pain, muscle strain, and tissue damage
- Repetitive Motion Injuries (RMIs) like tendinitis and bursitis, and how they are diagnosed and treated.

Occupational Ergonomics and human factors are devoted to the latest human technology and work designs and environment in the present scenario. This is thus open to many health hazards and risks involved in and out handling computers for long hours.



**Figure 1.26 Sitting disorders at workplace**

- Problems of the muscles, tendons, or nerves of the neck and upper limbs that are caused, precipitated, or aggravated by repeated movements or exertions of the body.

**INDIAN RETAIL SECTOR:**

The Indian retail industry is one of the fastest growing in the world. Retail industry in India is expected to grow to US\$ 1.3 trillion by 2020, registering a Compound Annual Growth Rate (CAGR) of 16.7 per cent over 2015-20. India is the fifth largest preferred retail destination globally. The country is among the highest in the world in terms of per capita trade store availability. India's retail sector is experiencing exponential growth, with retail progress taking place not just in major cities and metros, but also in Tier-II and Tier-III cities. Healthy economic growth, altering demographic profile, increasing disposable incomes, urbanisation, changing consumer tastes and preferences are the other factors driving growth in the organised retail market in India. India's population is taking to online retail in a big way. The online retail market is expected to grow from US\$ 6 billion to US\$ 70 billion during FY15-FY20.

**BIGBAZAAR (UDUPI)**

Big Bazaar is a household name that is used synonymously with 'retail' in India. We symbolize the desires of a typical Indian home. Founded in 2001 by Kishore Biyani, we as a retail chain operate under the parent establishment – Future Group – that holds a significant prominence in the Indian retail and fashion sectors.

Big Bazaar is one of the oldest hypermarket chains that houses around 250+ stores in the country. We cover three indispensable categories in Indian retail: home, food, and fashion. Popular retail chains – like the Food Bazaar and fbb form an fundamental part of Big Bazaar's uniqueness. The latter (i.e. fbb) has exponentially grown into a major brand that epitomizes fashion in India.

Address: Janardhana Tower Plot 88, TMA PAI Hospital, Udupi, Karnataka 576101 Phone: 0820 429 9278 Hours: Open today · 10AM–9:30PM

Discover the latest fashion clothing collection for women, men and kids' apparels, right from denim & at spare time to ethnic & casual wear at fbb in BigBazzar.

Four types of shopping reward is common in Big Bazaar:

- Bigbazaar profit club
- Payback
- T24
- Future Pay

Latest Happenings:

- Woman's shopping days
- 5 days Maha Bachat
- Sabse saste 6 din
- Skip the line with fast billing
- Bigbazaar monthly recharge
- Smart Search Live now

Industry	Retailing (Hypermarket)
Founded	2001
Headquarters	Mumbai, Maharashtra, India
Products	Department store
Promoter	Mr. Kishore Biyani
Revenue	Rs 6000 crores (in 2011) (Big Bazaar & Food Bazaar combined)
Employees	36000 people
Stores	214 (+) Stores Across 90 Cities in India.

**UDUPI BRANCH:**

Cashier: an executive who has charge of money, especially one who superintends monetary transactions, as in a bank



**Figure 1.27 Cashier Counter**

Team Leader: A team leader is someone who provides supervision, coaching, direction and leadership to a group of other folks (the team) for the purpose of achieving a solution based result or group of aligned results.



**Figure 1.28 Retail sales associate**

Retail Sales Associate: offers solutions to meet your needs. He is responsible for providing outstanding customer service. He takes care of the industrial hygiene, management and healthcare etc also from time to time.

**Table 1.4 Shows basic information of Hypermarket Big Bazaar**



**Figure 1.29 Customer service representatives**

They cooperate with customers on behalf of an organization. They provide information about products and services, take orders



**Figure 1.30 Departmental In charges**

Department Manager: Large retail stores separate merchandise by category to help customers find what they're looking for quickly and easily.

Big Bazaar on Facebook, instagram and twitter also.

#### **ERGONOMICAL COMFORTS AT BIGBAZAAR (UDUPI):**

Electronic point of sale a computerized system for recording sales in retail shops, using a laser scanner at the cash till to read bar codes on the packages of the items sold



**Figure 1.31 Sale trackers**

Gift vouchers: A gift voucher is a card or piece of paper that you buy at a shop and give to someone, which entitles the person to exchange it for goods worth the same amount. Big Bazaar from time to time announces gift coupons for the detriment of the buyers of big bazaar.

Wi fi: is a technology for wireless local area networking with devices based on standards.

Cash back Rs 300 on purchase of Rs 3000 goods & services. Future pay wallet is another facility of big bazaar. Ashtavinayak Friends Circle - Seva Sanstha! You have won the Grand Visarjan Mandali from Big Bazaar.



**Figure 1.32 Junk save benefits**

Junk removal service can save a lot of time and energy when spring cleaning the home.

This saves your staff the hard employment of retail waste elimination while allowing them ... you receive the same consistent waste removal service.



Figure 1.33 Junk saving



Figure 1.34 Management Information System

MIS: refers to the processing of information through computers and other intelligent devices to manage and support managerial decisions within an organization.

The Big Bazaar group family includes over 35,000 employees from a large cross-section of social and economic strata.

Information System in BIG BAZAAR percent of sales are estimated from this category.

After Future Group's Big Bazaar allowed customers to withdraw cash by swiping their debit cards at its stores.



Figure 1.35 Online Retailing

Online shopping is a form of electronic commerce which allows consumers to directly buy goods or services from a seller over the Internet using a web browser.

Consumers find a product of importance by visiting the website of the retailer.

Online retail is the highest growing channel internationally, as confirmed by the Planet Retail's retail panel data.



The online channel is expected to raise at a much faster rate vis-a-vis more established channels as is expected to account for 10.1% of overall retail sales in 2018, up from 6.5% in 2013, and 3.5% in 2008.



**Figure 1.36 Electronic Data Interchange**

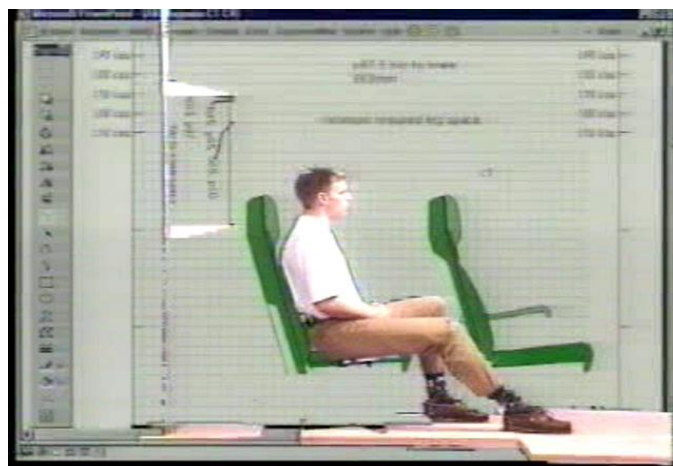
EDI System: is an electronic communication method that provides standards for exchanging data via any electronic means.

By adhering to the same standard, two different companies or organizations, even in two different countries.

Electronic Data Interchange (EDI) is the computer-to-computer exchange of business documents in a standard electronic format between business partners.

EDI replaces postal mail, fax and email. While email is also an electronic approach, the documents exchanged via email must still be handled by people rather than computers.

Having people involved slows down the processing of the documents and also introduces errors. Instead, EDI documents can spurt straight through to the appropriate application on the receiver's computer (e.g., the Order Management System) and processing can begin straight away.



**Figure 1.37 Long Sitting discomforts at EDI**

### SUVIDHA STORE (UDUPI):

Suvidha was started on 21st February 1976 as “I.G. of Police Employees Cooperative Consumer Stores Ltd”, to begin with with financial aid from the Police welfare Society.

It was renamed as Police Department Employees Welfare Association on 28th Sept 2001. Suvidha Consumer Stores is procuring at wholesale rates all Cereals, rice, pulses and other consumer items and selling to police families at prices 8 to 10 % less than MRP .

It also supplies stationery and office items to various Police offices in Hyderabad and nearby Districts in addition items of uniform at very aggressive prices. The Fire services and Prison Departments also acquire such items from Suvidha.

### ERGONOMICAL COMFORTS AT SUVIDHA:



Figure 1.38 Chair comforts

Back angle intensity of the seat ingress/arm rest back cushion angle arm rest hip to knee space wings Stiff cushions no side head support styling



Figure 1.39 Office Setups

### COMMON HEALTH HAZARDS AT RETAIL SECTOR:

- Eye and body of the person can be exposed to any injurious corrosive materials
- Retail grocery stores improper storing of stacked pallets to the suppliers to reduce future problems
- Exit route blocking and obstructed permanently or temporarily
- Sanitary Conditions, All places of employment ,passageways store rooms and service rooms shall be kept clean and orderly in a sanitary conditions

- Insecure storage of material should not create hazard e.g.: bags, containers and bundles
- All places of work should be kept clean. Gas cylinders should be stored secure in order to thwart tipping. Portable gas extinguisher should be placed in their selected places
- Proper AC and wiring circuits to be maintained to avoid fuse and short circuits
- Housekeeping includes storage areas which should be kept free from accumulation of materials that may cause hazards which may cause explosions, harbourage etc
- risk of slips or falls risk from moving vehicles in delivery areas, falling objects, and strains on your body from lifting loads and making repetitive movements
- violence from customers; lifting loads, sprains and strains, for example from repetitive work, slips, trips and falls; stress, bullying and sexual harassment, dangerous equipment, for example box crushers and meat
- Slicers risks , hazards connected with moving and storing goods, such as objects ,falling from pallets and racking, stacking that is unstable or difficult to access, and unsafe ladders, moving vehicles in delivery areas, working unsocial hours.

Thus inspite of the comforts ergonomical hazards and risks are prone to these sectors.

#### **HYPOTHESIS TO BE TESTED:**

**Statement 1:** There is a direct relationship of work facilities and Employees performances in the three industries Banking, Retail & IT

Degree of freedom=(c-1) (r-1)

Level of significance (standard) = 5% i.e.: 0.05

Let: H0 be true & H1 be false

Total Sample from the three industries = 600 Banking- 200, IT-200 & Retail-200

H0= Increase in work related ergonomical facilities for employees in organizations also increases Employee performances and output of the organizations

H1= Increase in work related ergonomical facilities for employees in an organizations doesn't change Employee performances and output of the organizations

Let us allocate designations to the above credentials in the table as below:

Agree be A1 & Banking be B1

Partially Agree be A2 & Retail be B2

Disagree be A3 & IT be B

**Table 1.5 Data Collected from Various sectors under study**

Number of Respondents	Increase in work related Ergonomical facilities in the organizations increases performances and output of the employees at work			Total
	A1 Agree	A2 Partially Agree	A3 Disagree	
Banking Sector B1	180	10	10	200
Retail Sector B2	160	30	10	200
IT Sector B3	190	5	5	200
Total	530	45	25	600

Calculation of the Expected frequencies:

$\frac{A1 \times B1}{N} = 176.6$

N

$\frac{A1 \times B2}{N} = 176.6$

N

$\frac{A1 \times B3}{N} = 176.6$

N

$\frac{A2 \times B1}{N} = 15$

N

$\frac{A2 \times B2}{N} = 15$

N

$\frac{A2 \times B3}{N} = 15$

N

$\frac{A3 \times B1}{N} = 8.33$

N

$\frac{A3 \times B2}{N} = 8.33$

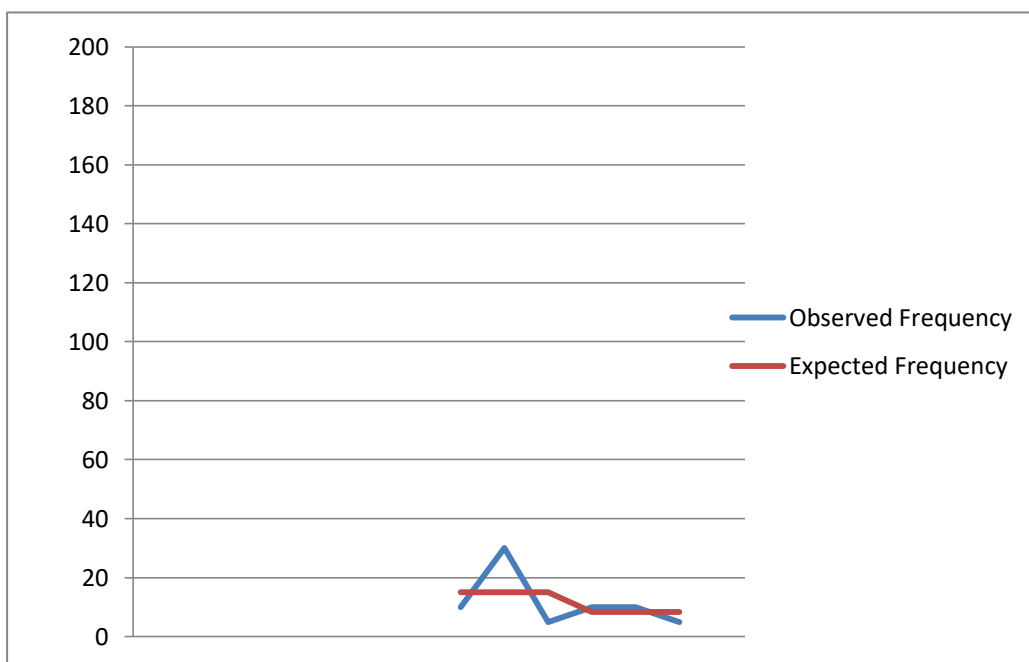
N

$\frac{A3 \times B3}{N} = 8.33$

N

**Table 1.6 Frequency calculations**

Observed Frequency	Expected Frequency	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
180	176.6	11.56	0.0654
160	176.6	11.56	0.0654
190	176.6	11.56	0.0654
10	15	225	15
30	15	225	15
5	15	225	15
10	8.33	69.38	8.32
10	8.33	69.38	8.32
5	8.33	69.38	8.32



**Figure 1.40 Relationship of work facilities and Employees performances**

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

$$\chi^2 = 70.156$$

$\chi^2$  @0.05 d.f table value is 90.531

Thus, calculated value is less than table value therefore H0 to be true & H1 to be false.

Conclusion: H0 (Null) is accepted. It is true that the increase in work related ergonomical facilities for employees in organizations also increases Employee performances and output of the organizations

**Statement 2:** Provision of the Ergonomical comforts for the workers leads to least labour attritions & also develops trust in workers towards the firm.

H0= Increase in Ergonomical comforts for the workers leads to least labour attritions & also develops trust in workers towards the firm

H2= Increase in Ergonomical comforts for the workers does not lead to least labour attritions & also develops trust in workers towards the firm

**Table 1.7 Data Collected from Various sectors under study**

Respondents from Banking, Retail & IT	Provision of the Ergonomical comforts for the workers leads to least labour attritions & also develops trust in workers towards the firm for long stay			Total
	A1 Agree	A2 Partially Agree	A3 Disagree	
Banking Sector B1	170	22	8	200
Retail Sector B2	160	35	5	200
IT Sector B3	178	17	5	200
Total	508	74	18	600

Let us allot designations to the above credentials in the table as below:

Agree be A1 & Banking be B1, Partially Agree be A2 & Retail be B2, Disagree be A3 & IT be B

Calculation of the Expected frequencies:

$$A1 \times B1 = 169.3$$

N

$$A1 \times B2 = 169.3$$

N

$$A1 \times B3 = 169.3$$

N

$$A2 \times B1 = 24.6$$

N

$$A2 \times B2 = 24.6$$

N

$$A2 \times B3 = 24.6$$

N

$$A3 \times B1 = 6$$

N

$$A3 \times B2 = 6$$

N

$$A3 \times B3 = 6$$

N

Table 1.8 Frequency Calculations

Observed Frequency	Expected Frequency	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
170	169.3	0.49	0.00289
160	169.3	86.49	0.51086
178	169.3	8.7	0.05138
22	24.6	6.76	0.27479
35	24.6	108.16	4.39674
17	24.6	57.76	2.34796
8	6	4	0.6
5	6	1	0.16
5	6	1	0.16

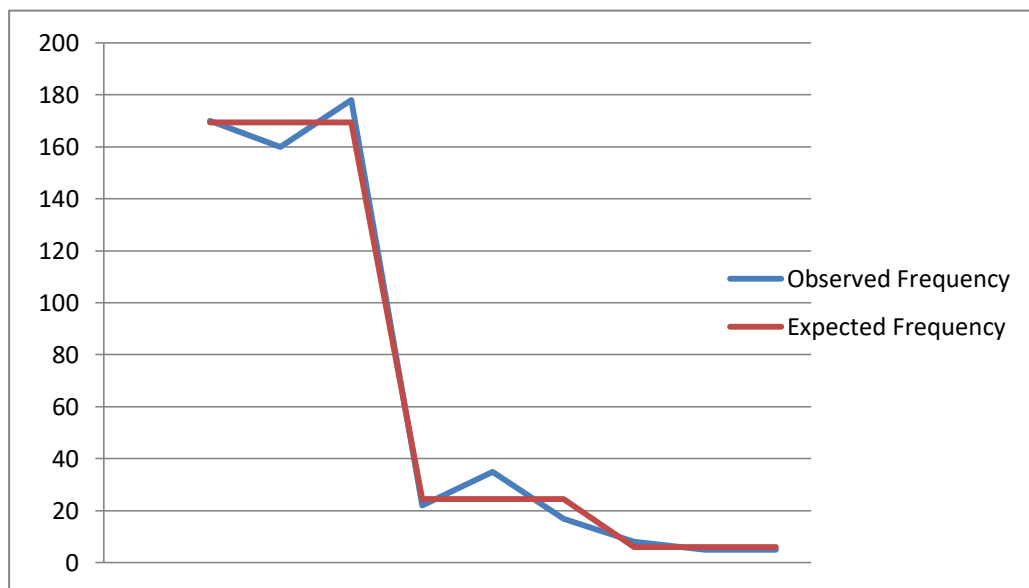


Figure 1.41 Comforts &amp; labour attritions

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

$$\chi^2 = 8.50462$$

$\chi^2$  @0.05 d.f table value is 16.919

Thus, calculated value is less than table value therefore H<sub>0</sub> to be true & H<sub>1</sub> to be false.

Conclusion: H0 (Null) is accepted. It is true that the Provision of the Ergonomical comforts for the workers leads to least labour attritions & also develops trust in workers towards the firm for long stay

**Statement 3:** Ergonomics helps in reducing risk and minimizes occurrences of the accidents at work time in different types of organizations

H0= Ergonomics helps in reducing risk and minimizes accidents in organizations

H3= Ergonomics does not help in reducing risk neither minimizes accidents in the organizations

**Table 1.9 Data Collected from Various sectors under study**

Respondents from Banking, Retail & IT	Ergonomics helps in reducing risk and minimizes occurrences of the accidents at work time in different types of organizations			Total
	A1 Agree	A2 Partially Agree	A3 Disagree	
Banking Sector B1	190	5	5	200
Retail Sector B2	195	5	0	200
IT Sector B3	198	2	0	200
Total	583	12	5	600

Let us allot designations to the above credentials in the table as below:

Agree be A1 & Banking be B1

Partially Agree be A2 & Retail be B2

Disagree be A3 & IT be B

Calculation of the Expected frequencies:

$$\frac{A1 \times B1}{N} = 194.3$$

N

$$\frac{A1 \times B2}{N} = 194.3$$

N

$$\frac{A1 \times B3}{N} = 194.3$$

N

$$\frac{A2 \times B1}{N} = 4$$

N

$$\frac{A2 \times B2}{N} = 4$$

N

$$\frac{A2 \times B3}{N} = 4$$

N

$$\frac{A3 \times B1}{N} = 1.6$$

N

$$\frac{A3 \times B2}{N} = 1.6$$

N

$$\frac{A3 \times B3}{N} = 1.6$$

N

**Table 1.10 Frequency Calculations**

Observed Frequency	Expected Frequency	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
190	194.3	18.49	0.095162
195	194.3	0.49	0.002521
198	194.3	13.69	0.070458

5	4	1	0.25
5	4	1	0.25
2	4	1	0.25
5	1.6	11.56	7.225
0	1.6	2.56	1.6
0	1.6	2.56	1.6

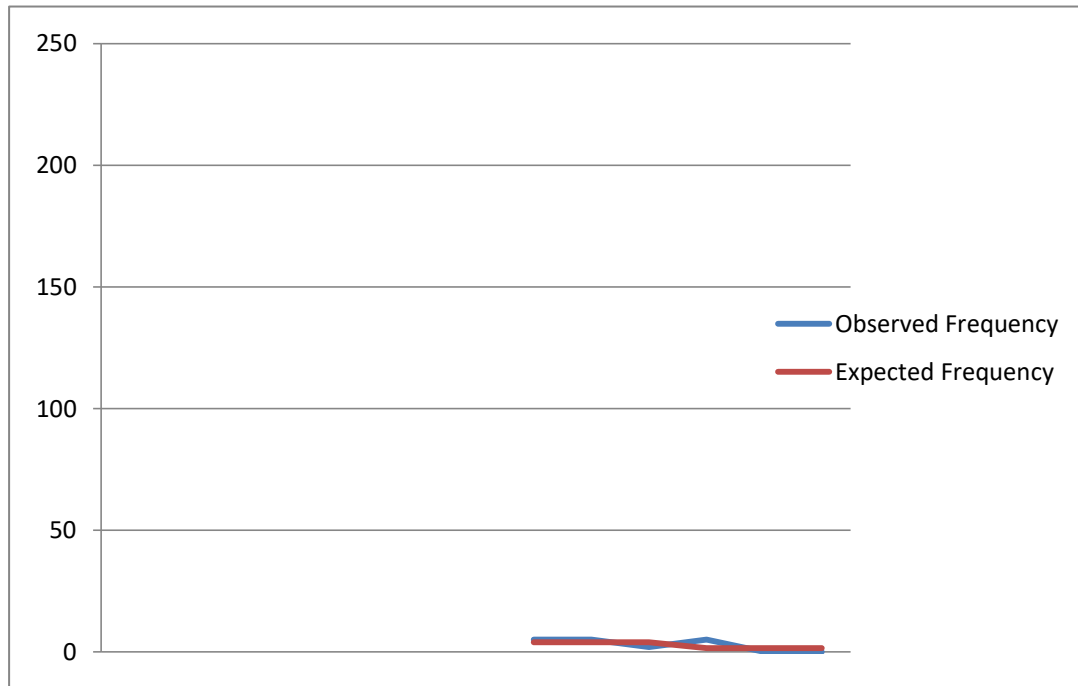


Figure 1.42 reduces risk and minimizes occurrences of the accidents

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

$$\chi^2 = 11.343$$

$\chi^2$  @0.05 d.f table value is 19.675

Thus, calculated value is less than table value therefore H0 to be true & H1 to be false.

Conclusion: H0 (Null) is accepted. It is true that Ergonomics helps in reducing risk and minimizes occurrences of the accidents at work time in different types of organizations

**EXPECTED OUTCOME:** H0 TO BE TRUE IN ALL CASES ABOVE

**ACTUAL OUTCOME:** H0 TO BE TRUE IN ALL CASES ABOVE

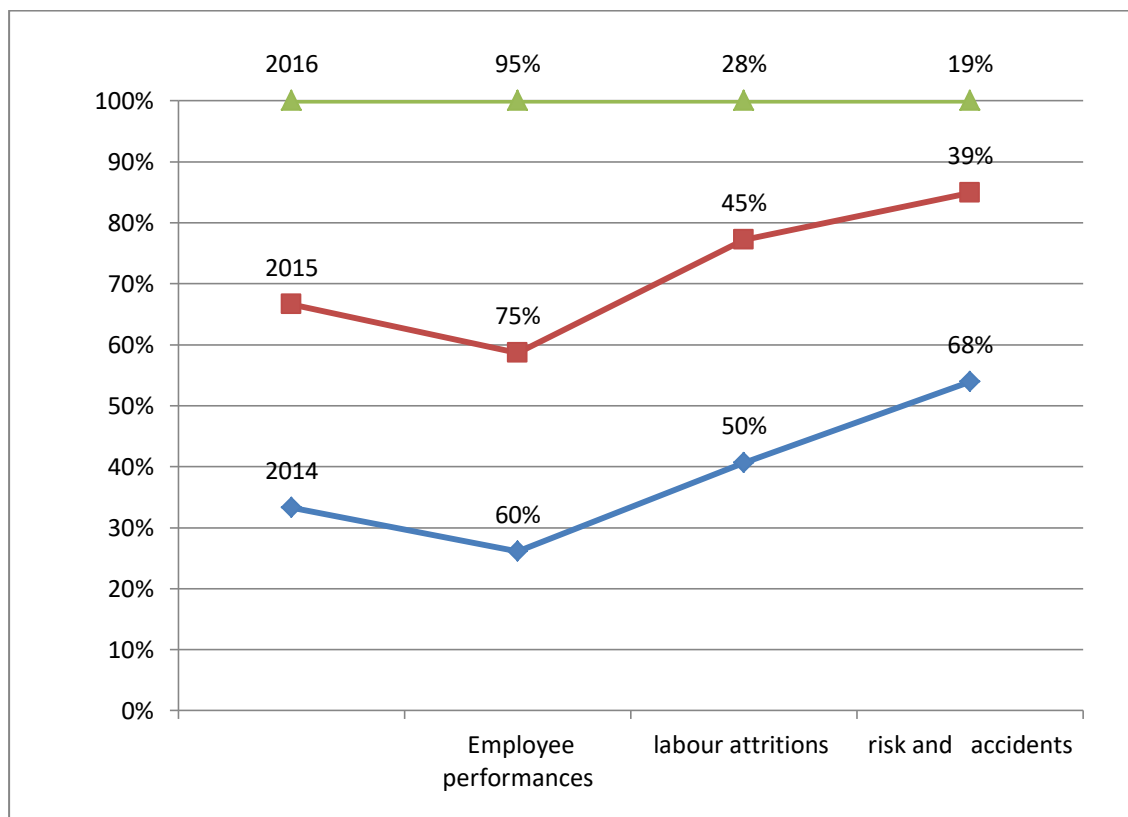
## 5. ANALYSIS & INTERPRETATION

It can be interpreted from the above chart that as employee ergonomical comforts are increased there is a rise in the employee performances and vice versa.

This indicates that the employees really want and feel good with automatic motivations with increase in the ergonomical facilities provided to the employees.

As the ergonomical facilities has increased from 2014 to 2016 there is an increase in the employee performances in IT, Banks & Retails. Trend is 2014-60%, 2015-75% & 2016-95%.





**Figure 1.43 Ergonomical relationships of variables**

Further it can be understood that the labour attrition rate has followed a decreasing pattern in case of providing ergonomical benefits to the workers in IT, Banking & Retail sectors.

Trend is 2014-50%, 2015-45% & 2016-28%. This means there is a reduction of employee absenteeism and attritions from work with increased ergonomical facilities.

Also, from the above chart it is clear that with increased ergonomical facilities there is an decrease in the accidents and mishaps in the firms. Trend is 2014-68%, 2015-39% & 2016-19%. This clearly indicates that with an increase in the ergonomical facilities in the firm there is a reduction in the risk and accidents in the organizations related to the work zones in all the three sectors of Banking, IT & Retail.

## 6. FINDINGS

From the above studies some of the most important findings are as below:

- It is interesting to note that there is a direct relationship of the ergonomical facilities and the employee satisfactions in different forms. As any one increases the other one increases automatically. It is clear as the ergonomical comforts increases employee performances and output too increases vividly.
- It can be observed that increases in the ergonomical facilities in various types of organizations there is a considerable reduction in the attrition rate of the employees.
- Also with an increase in the ergonomical facilities there is an reduction in the risk and accidents faced by the employee from time to time in the organization.
- Ergonomics helps in reducing risk and minimizes occurrences of the accidents at work time in different types of organizations
- Provision of the Ergonomical comforts for the workers leads to least labour attritions & also develops trust in workers towards the firm.

## 7. CONCLUSION

It can be concluded from the study that Ergonomical facilities play an important role in the lives of the employees whether they are from the Banking industry, IT industry or Retail sector. Employees enthusiasm and work efficiency keep on increasing with the passage of time over the period of years due to best ergonomical fits in the workplace.

Banking sector includes the teller machine related work, clerical & counter works related to entries or meeting customer requirements etc All these need good ergonomical set up at industrial levels so that working consumes less time & energy and doesn't cause any injuries of physical or mental types to the employees.

Likewise in the IT sector also there is an urgent need of ergonomical facilities enhancements in various work areas. Especially eye protection and long hours sitting posture for long hours are also risk prone causing injuries of various types. In retail sector it is commonly observed that the employees are faced with the problem of standing for hour's together, mental stress while handling customers and many such complexities causing injuries of multiple types. Employers have to comply with national legislation restricting the number of hours that you can work, including nightshifts, the tasks that you can carry out, and the machines you can operate. At the same time proper care has to be taken by the employers in providing all sort of comforts to their workers in any fields as such. This will in turn help company becoming more productive as well.

## 8. SUGGESTIONS

It can be suggested here with regard to the Banking sector that employees need to be given best risk free ambience to work if company wants to grow as well as wishes employees to be hundred percent productive in all ways. Although all the IT, Banking and Retail sector has been growing fast but still need for more and more of hazard free environment will be in demand by the employees which should be adhered by the employers. Banking sector can use more of machine based equipments and electronic gadgets for best performances and least efforts. Likewise, IT firms can go for protective devices for avoiding stress and strain at workplace. Retail sectors can be given still better work climate and comfort by avoiding long standing hours of employees and usage of electronic devices can be too made possible for them.

Apart from these employees should be mentally stress free & for that they can be give comforts of good packages, allowances, housing recreation facilities and insurance, medical, family education supports.

## 9. FUTURE ENHANCEMENT

There is always a wide scope of finding solution to various workplace injuries from time to time in various active sectors like Banking, IT & Retail outlets. Every now and then there is a necessity of bringing improvements in workplace comforts by the employers. There is always scope of further betterment of the work place from stress and strain which could be major or minor in nature. Researcher can go a step ahead in diagnosing major ailments at workplace of banks, IT & retail and further studies can bring more and better solutions to multiple problems as well. With a change in the industrial environment there is a need of many ways getting over multiple varieties of mental and physical injuries. New types of technological office automations give way to the need of facing coming up various injuries by the employees. Researchers can include new dimensions of problems and dangers which are in form of a untold risks which different work field includes a thorough study.

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