NIEAS: NETWORK BASED APPROACH FOR IMAGE ENHANCEMENT USING AUTHORATIVE SEGMENTATION

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ABSTRACT

Network based approach for Image Enhancement using Authorative Segmentation i.e. NIEAS system is based on the concept of distributed image processing. In distributed environment, using the various image processing algorithm, important information or data from the image can be retrieved in parallel by enhancing the features of image object. Image contains various kinds of object and that object contains the information. Many times it is observed that using the image-processing algorithm experts are trying to find the information contained in the image. It is quite difficult to get the whole information at one instance. For that, by using the concept of Image segmentation first object of the image can be separated and then it will be analyzed. Our main concentration is on the concept of segmentation of image with respect to change in the space. Authorative Segmentation means the cropping of the image as per the requirement. After cropping the image part of the image will be saved as a single image object, it will be distributed through the existing network and then it will be analyzed.

Keyword: *NIEAS.*

1 Introduction

Many algorithms have been developed for paralleling different image operators on different parallel architectures. The objective of NIEAS system is to achieve parallel and distributed Image Processing. The goal is very simple:

"To segment an image into pieces and distribute these pieces to processing devices in networking, to increase the processing speed and to save the time."

The principle of Authorative segmentation is shown in *Figure 1*. It says that Image segmentation can be made available through NIEAS system for any application in which the administrator or main authority has freedom to segment the image as per requirement without using the standard algorithm. This concept can be archived by using the manual segmentation. Authorative segmentation is the heart of the NIEAS system and by using which only network approach can be taken for distributed and parallel image processing.

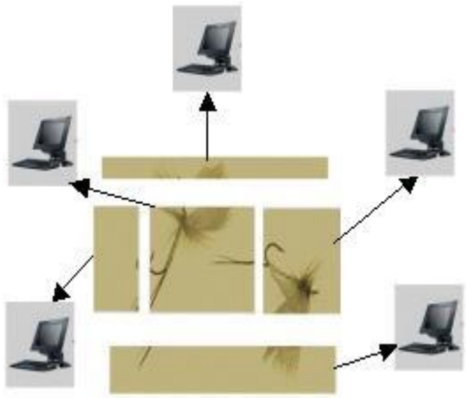

Figure 1: Concept of Authorative Segmentation

2 The NIEAS System:

The main idea behind this system is to **"Distribute the work and Save the Time "**

Basically in this system two major areas of the computer science and engineering are considered.

i. Computer Networks & Distributed System and

ii. Image Processing.

The basic purpose of first area is to provide the support for network approach used in NIEAS system through which the parallel and distributed part can be achieved. While second area helps to achieve the image processing parts like image enhancement and image segmentation.

2.1 Definitions:

Some basic definitions relevant to NIEAS system are as follows:

I. Image processing:

The analysis, manipulation, storage, and display of graphical images from sources such as photographs, drawings, and video.

II. Distributed system:

It looks in in multiple locations throughout an organization. It works in a cooperative fashion, with the system at every area and location. It serve the requirement of that location but also able to receive information from other systems, and supply information to other systems within the network.

III. Distributed processing:

In this, every machine in network does its task and processing and do manage the data while doing the communication between the machines as nodes.

IV. Distributed Image Processing:

Each machine as node in the network performs various operations on image and manages the information which is retrieved from manipulated image while the network facilitates communications between the nodes.

V. Image Enhancement:

The process by which an image is manipulated to increase the amount of information perceivable by the human eye.

VI. Image Segmentation:

In image analysis, segmentation is the partitioning of a digital image into multiple regions (sets of pixels), according to a given criterion.

2.2 Goals and Objective:

The Primary goal as stated above is to build parallel and distributed image-processing platform. Simple as well as complex image processing functions related to the Image Enhancement can be utilized for extracting the information from image segments. The ultimate goal is to enable the distributed computing platform to cope with any type of SIMD (Single Instruction Stream, Multiple Data Stream) tasks.

2.3 Steps for NIEAS System:

The above goal can be achieved by using the NIEAS concept. It can be visualize as follows:

Step I: The image can be considered as one object and it can be divided into parts or pieces with respect to the change in the space.

Step II: Now the part of images can be considered as separate image object or image segment and these objects can be distributed using the existing network for analysis purpose.

Step III: The experts can analyze distributed image objects and information can be retrieved accordingly.

Step IV: The analyzed or processed image segments can be recollected along with the information retrieved from that segments.

Step V: Using the technique of merging, in which the entire image segments can be merged together with respect to the space can form a single processed Image Object.

The NIEAS system can be drawn as follows:

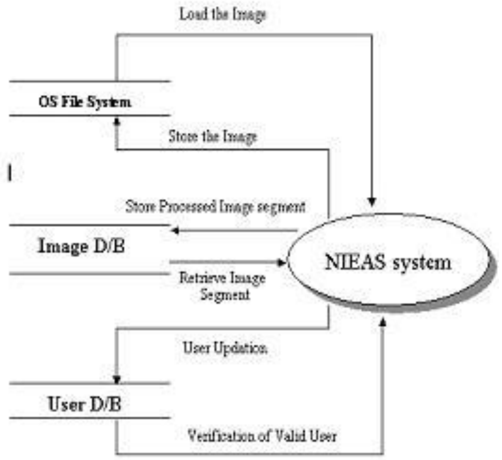

Figure 2 NIEAS System

3. Design Approach

As the name itself suggests, the system includes three main operations i.e. Image Enhancement, Authorative Segmentation and Distribution of Image Segment over the network. Image enhancement is the first step to design the NIEAS system.

- **Image enhancement**

Image enhancement refers to sharpening of image features such as edges, boundaries or contrast to make a graphic display more useful for display and analysis. The objective of image enhancement is dependent on the application context and criteria for enhancement is often subjective or too complex to be easily converted to useful objective measures. Also the image enhancement techniques used in this project form primitive operations used in image processing applications.

In image enhancement, the objective is to make the processed image better in some sense than the unprocessed image. The following are some of the operation that can be performed for enhancing the image.

There are various Algorithm of Image Enhancement which are categorizes, with example of each which is used in the project for preprocessing purpose, as follows :

1.Gray Scale Transformation (Contrast Stretching, Brighten Effect, Invert, Gary Scale of Color Images, etc.)

2. Linear filtering (Edge Detection)

3. Low pass filtering (Smoothing, Blurring)

4. High pass filtering (Sharp)

5. Geometric Transformation (Rescaling, Zooming, Rotation, etc.)

6. Color Modeling (Red Invert, Red Remove)

Following are some of the example diagram of various Image Enhancement operations.

I. Negation or Invert

Figure 3 Negation Algorithm

II. Brightness Adjustment

Figure 4 Brightness Algorithm

III. Grayscale Operation

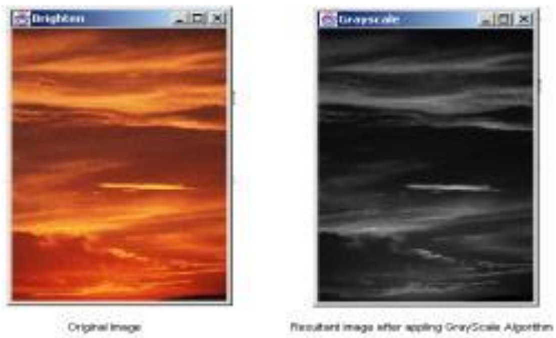

Figure 5 Grayscale Algorithms

IV. Edge Detection:

Figure 6 Edge Detection Algorithm

V. Scaling

Figure7 Scale Algorithm

- **Image Segmentation:**

Image segmentation refers to the decomposition of scene or image or picture into its component. That is it concerned with splitting an image up into segments that each holds some property distinct from their neighbor. It is the basic requirement for any identification and classification of objects in an image.

Techniques of Image Segmentation:

A central problem, called *segmentation* is to distinguish objects from background. For intensity images four popular approaches are:

a. Threshold techniques,
b. Edge-based methods,
c. Region-based techniques, and
d. Connectivity-preserving relaxation Methods.

Hybrid Technique:

By using the last two techniques, region based and connectivity-preserving relaxation-based segmentation method, mentioned above a hybrid technique is formed. Using this new technique the input image is segmented by the administrator in this application and distributed to the user. After processing by the user, again all segments will be recollected by administrator. Using region based method the area of interest can be selected by admin for segmentation and at last after processing to redraw the image, connectivity-preserving method is used for proper combination.

Authorative Image Segmentation

In this system it is considered that all the rights for segmenting any image is given to the administrator. Only administrator can define the region after selection and can assign that particular segment to the any user. User doesn't have facility to select the image from any of the machine connected in networking. He has to process the image segment, which is specified for it by the administrator. It means that this system is restricting to anyone, except administrator, to change any important image in any machine. Application doesn't give any facility of segmentation to user. That's why the word Authorative Image segmentation is used.

The example of Authorative Image segmentation is given below:

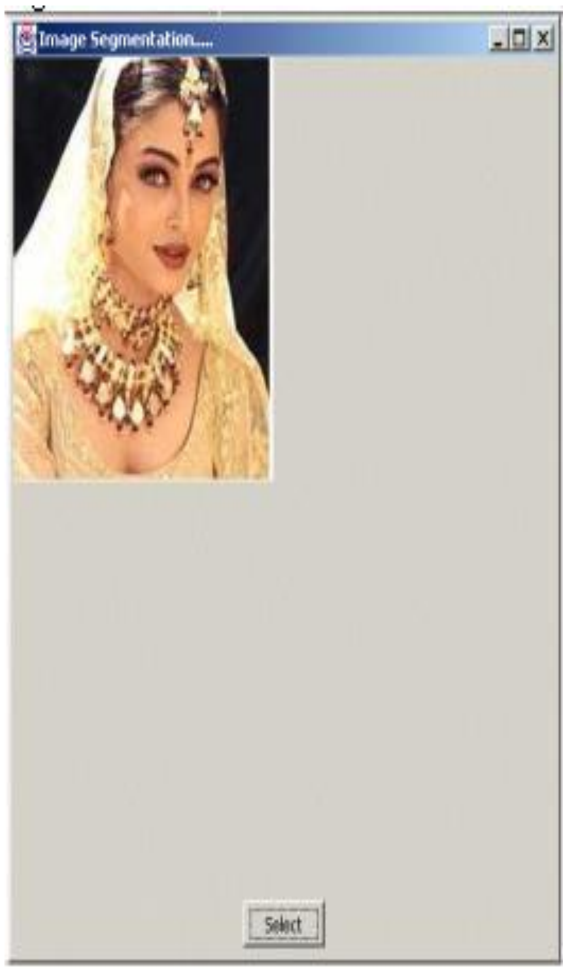

Figure 8 Original Image for segmentation

In this paper we have considered that NIEAS system divides the Image Object into five parts or Image Segments.

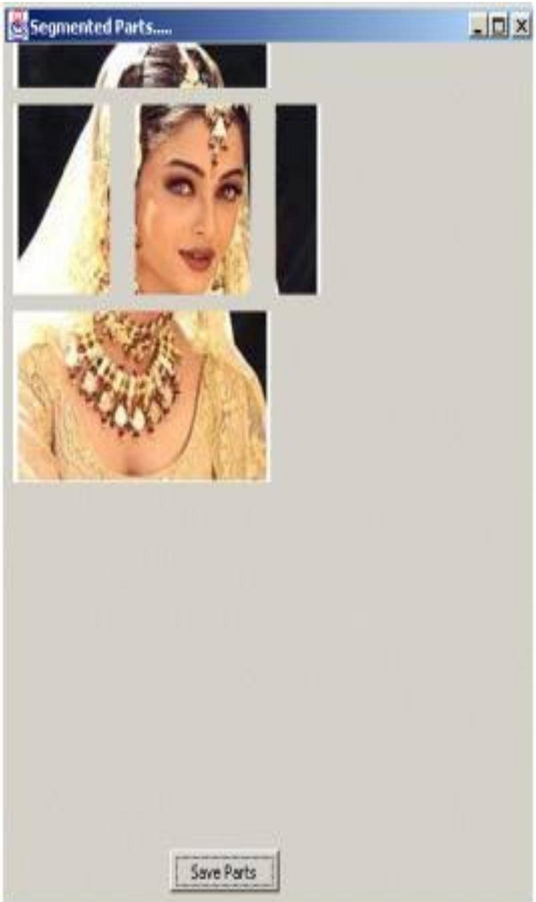

Figure 9 Authorative Segmentation

- **Image Segments Distribution**

After performing the basic Image processing operation, Image segments can be distributed over the network for next processing. Each connected node in distributed environment would be assigned the appropriate image segments as per the availability of functions and experts.

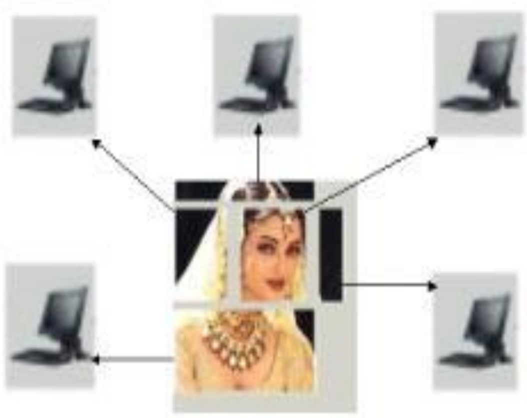

Figure 10 Image segment distribution

4 Example and Applications

- **Example**

Following is the example of NIEAS system with all the operation step by step. Figure 10 shows the function of NIEAS Administrator.

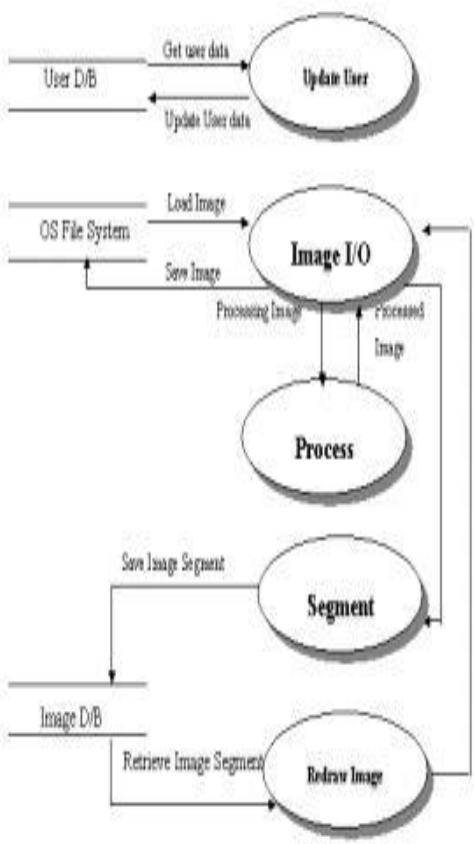

Figure 11 NIEAS administrator function

a. Original Image from any source can be considered for extracting the information.

Figure 12 Original Image

b. The original image can undergo the Image enhancement before the Authorative segmentation. Here the operation considered is Sharp Effect.

Figure 13 Application of sharpen effect

c. After applying the various image enhancement algorithms, administrator can divide the image by using the Authorative Segmentation principle with respect to the change of the space. The image can be segmented into the required number of parts, which can be decided by the administrator. The number of segments can be decided on the basis of available nodes for processing, requirement of the application, the information required from the image and how important is the image. In this example consider that the image is partitioned into five major parts and these parts are distributed to five expert users for the processing.

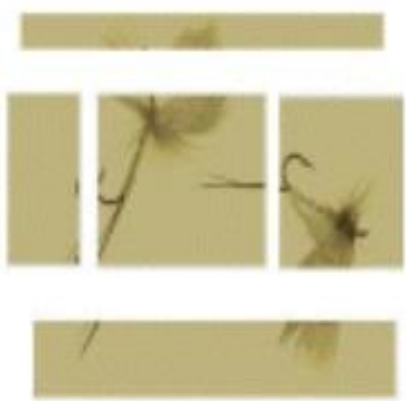

Figure 14 Authorative Segmentation

d. In next step, using NIEAS system functionality, expert user can process the image segment; try to retrieve the information as per the requirement of application and instruction of administrator. Also the user has to store the processed image and information retrieved at the same location from where it is taken.

Figure 15 Middle segment of Image 11

In above example, the operation performed by the expert user is brighten effect.

e. The last but not the least part of the NIEAS system is to redraw the processed image from all processed image segments. For example if we take image segments of Aishwarya Roy shown in Figure. 3.8 and some of image segments are processed by experts and return back to administrator. The administrator can recollect the processed image segments and using merging technique able to redraw the image.

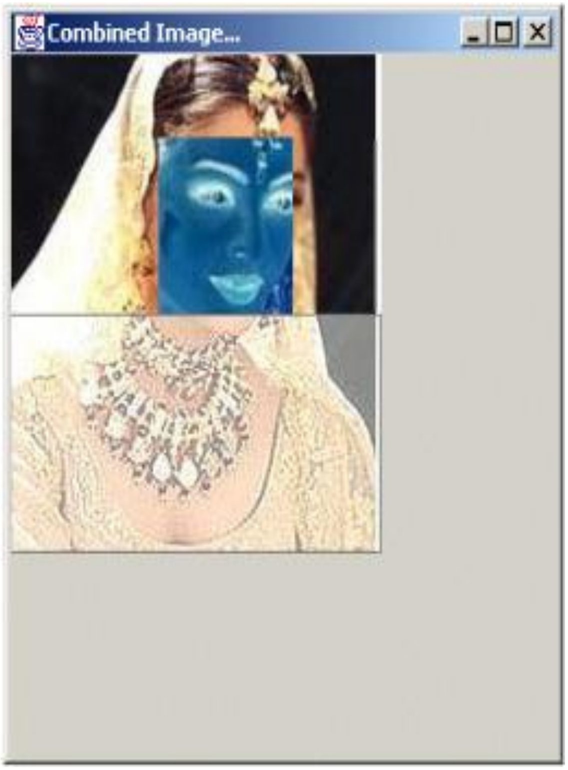

Figure 16 Image redrawn from processed image segments of Aishwarya Roy

The Figure 4.6 shows that applying the basic image enhancement algorithm experts has processed some of the image segments.

- **Application**

NIEAS system can be used where the application required processing of high-resolution images. Electronic Imaging, Medical Diagnosis, GIS system, Film Industry are some of the example where high-resolution images are processed in day-to-day life. Recognition of the components mounted on the PCB.

Also this system finds the application in GIS system where recognition of the various objects of the photograph taken through satellite imaging is important.

5 Conclusion

Network based approach for Image Enhancement using Authorative Segmentation that is NIEAS system can be used in many application of Image Processing. The main aim behind this system is to achieve the Parallel and Distributed Image Processing. Number of users can login simultaneously and access the segments of the image, to work in parallel, which tremendously saves the processing time and efforts required. Instead of concentrating any image-processing algorithm in detail, this system is mainly focus on Distributed Image processing.

Acknowledgment:

We are very grateful to BCUD, University of Pune for providing Research Grant for the said system. Also we are very thankful to our Management and Principal for providing the required infrastructure for developing this system. We would like to give our sincere thanks to Prof. Mrs. Uma Nagaraj and Head of Computer Engineering for her constant source of inspiration and Encouragement

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A STUDY ON RELATIONSHIP BETWEEN FACTORS AFFECTING WORK PRESSURE AND THEIR INFLUENCE ON THE EMPLOYEE EFFICIENCY

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ABSTRACT

The work related pressure has critical mental and physiological impacts on employee performance. However, the work related pressure has some affliction impacts also. The work related pressure makes positive response that makes individual to accomplish and defeat a situation and motivates to perform best of his/her capacity. The large portion of the study conducted observed the impacts of work pressure on staff the scope of the study was restricted to IT industry. The aim of this paper is to illuminate the problem the "Stress" followed with its consequences for staff. A survey of 346 employees was done to analyse the work related, organization related and individual related pressure and its impact on employee efficiency. The relationship analysis was used to establish association of these factors and their impact on work efficiency. Reliability was established using cronbach's alpha. In the conclusion we mentioned that all three types of pressure affects the staff's' exhibition of the efficiency.

***Keywords**: Job related pressure, work efficiency, organisational pressure, individual pressure.*

Introduction

The term work related pressure mean difficulty, strain, misfortune or hardship. The work related pressure has been of extraordinary worry to workers and different stakeholders in organisation. Job related pressure is difficult area for the organisation (Ornelas and Kleiner 2003). Price of work related pressure is exceptionally more for most of the organization. Work related pressure, characterized impression for disparity among expectational personal abilities keep those (Ornels and Kleiner, 2003). Christo and Pienaar (2006) said that the cause of work related stress of employment and difficult work, absence of comfort, intricacy, absence of independence for work. Also, work related pressure is brought about by absence of resourses; work plans, for example, burning the midnight oil or extra time and hierarchical environment are considered as supporters of staff's stress. Work related pressure frequently shows high disappointment among the representatives, work portability, burnout, helpless work execution and less compelling work (Manshor, Rodrigue, and Chong, 2003).

Mental stress impact the wellbeing through passionate, intellectual, social and mental variables (Levi 1998). The job conflicts, job over-burden, job struggle have association and are normal reasons for the work related pressure (Sethi and Chand, 1997). Sort of job alloted for a representative is additionally work related pressure factor and those occupied with business ready to adapt work related pressure compared to the individuals who are appointed disconnected job (Tread G. 1999). Pressure associations is characterized as far as maverick between an individual's abilities and capacities and requests of his/her work and as a loner as far as an individual's requirements are not satisfied with work climate. Cooper et al said that job related pressure is implied variables, Cooper and Marshall (1976)

Review of Literature

Calpan et. al. (1975) viewed an individual, job space and job set with their association involves in assumptions for huge jobs, makes significant work related pressure dependent on the circumstances. Pareek (1983) worked on the work related pressure while distinguishing unique kinds with job stress. Hypotheses related to work related stress influence. (Osipow, 1998). Job load can bring about representative facing violence and disappointment

(Marini et al; 1995). Nervousness, widely recognized work pressure by which memorial specialists inspected recall implementation. Hussy (2003) showed employees contrastingly saw directors gives critical health impacts. Complete survey by harassing revealed critical associations of tormenting and emotional strain (e.g) depression, nervousness. A review of work related stress, showed that work related pressure is higher than individual related work related pressure (Karunanithy and Ponnampalam 2013).

Objectives

Based on the literature review following objectives were formed for the study;

1] To study the causes of work pressure and its influence on the work efficiency.

2] To study the relationship between the causes of work pressure.

Hypothesis

In view of the recognized issue, research question and the targets the following hypothesis were framed to test in the study.

Hyp1: Job related pressure has a relationship and also impact on staff's efficiency.

Hyp2: Organizational related pressure has association and also impact on staff's efficiency.

Hyp3: Individual related pressure has association and also impact on staff's efficiency.

Research methodology

In light of the previous study Seley (1993), the autonomous factor in this research additionally partitioned to job, organization and individual pressures.

Survey was conducted for 400 employees from different IT companies in and around Pune city. Out of which only 346 completed responses were used in this research. A structured instrument was developed for information collection.

Table 1: Demographic distribution of sample:

	Particulars	Number
1	Male	197
2	Female	149
	Total	346

Table 2: frequency distribution:

Sr. No.	Age group	Number of Respondents
1	25 to 34 years	85
2	35 to 45 years	99
3	46 to 55 years	94
4	Above 55 years	67

Data Analysis and hypothesis testing

The structured questionnaire was prepared based on the primary and secondary data used in the study. Likert type of rating scale was used for collection of information. Internal consistency was established using Cronbach's Aplha. The value was 0.87 which is within the acceptable limits. The barletts test showed the significance level to 0.000, confirming the sampling adequacy for the study.

Karl Pearson's relationship coefficient was estimated to establish association between various causes of pressure and their impact on work efficiency.

Factors	Job related pressure	Organizational related pressure	Individual related pressure	Work efficiency
Job related pressure	1	0.28**	0.21**	-0.18**
Organizational related pressure		1	0.31**	0.21**
Individual			1	0.16**

related pressure				
Work efficien cy				1

** significant at 0.05 level.

Table 2: Coefficients of relationships between various factors;

Coefficients[a]					
	Unstandardized coefficient		Unstandardized coefficient	T	Sig.
	B	StdErr	Beta		
Constant	9.16	1.72		5.42	0.001
Job related pressure	-0.11	0.04	-0.15	-1.3	0.021
Organizational related pressure	-0.06	0.05	-0.07	-0.23	0.043
Individual related pressure	0.09	0.05	0.11	0.53	0.031

From the above results it is clear that job related work pressure, organisational related pressure and individual related pressure have significant impact on the work efficiency. Thus from the correlation matrix and the significant values of beta coefficients the three hypothesis constructed for the study were proved. Therefore it is concluded that the three factors considered for the study share the relationship among themselves and has significant impact on the work efficiency of the employee.

Conclusion

From the study, it was seen that over all work related pressure which is referenced through the three different factors i.e work pressure, organisational related pressure and individual related pressure affects the work efficiency. All above factors are the predominant reason for work related pressure. These issues should be inclined to by the administration of the organization by Ergonomics to comprehend the cooperation among people and different components of a system. We have additionally noticed that female staff will have more work related pressure in view of their double jobs and assuming liability of family. Appropriate procedures should be created thinking about dealing with adaptable hours.

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THE ROLE OF SERVICES MERCHANDISING STRATEGIES IN THE GROWTH OF THE INDIAN FINANCE SECTOR WITH SPECIAL REFERENCE TO PUBLIC SECTOR UNDERTAKINGS

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ABSTRACT

In this descriptive paper researcher found that service marketing is essential for growth of Indian PSU, because banking rates and products are mostly same across all the banks so that it was about effective bank advertisements which deal details of providing employment to fulfill patron commercial enterprise of necessity & requirement. The banks are the relied on locations of customers, and have come throughout many modifications in their operative. Financial institutions are strongly opposed to the proposal. In this regard, the role of technology has emerge as imperative as by no means before. Financial companies will need to implement a comprehensive publicity campaign. Consumer delight is critical for the future of any banking organization, in this paper we are limiting our discussions towards aspect of services mercantilism mix in maturation of finance aspect, research questions are identified for further study on this issue of marketing by PSU banks.

Keywords: *PSU banks, marketing, Services, Indian banks, customer delight, RBI.*

Introduction

There are additionally 12 public sector banks, 22 private sector banks, 46 foreign banks, 56 regional rural banks, 1485 urban cooperative banks, and 96,000 rural cooperative banks in the Indian financial system. the assets of public sector banks were Rs. 107.83 lakh crore (US $1.52 trillion). Between FY16 and FY20, bank credit rose at a three.57 percent CAGR. In FY20, total credit granted climbed to $1,698.97 billion. Deposits grew at a 13.93 percent CAGR from FY16 to FY20, reaching US $1.93 trillion by FY20.

The banking business is a key component of the offerings sector in India. Prior to monetary liberalization, public sector banks enjoyed a market monopoly due to the government's protectionist policies. The liberalization initiative implemented by the Government of India in 1991 allowed foreign and private banks to enter the financial sector, resulting in increased competition. As a consequence of growing rivalry, banks are experimenting with marketing strategies to differentiate their goods from those of their competitors. Information about service advertising and marketing mix is essential for building efficient marketing strategies.

It implies that rate is no longer essential in Indian banking industry, survey on increase and emergence of public and private area banks in India revealed that private sector banks are no longer favored for traditional items, such as loans, as their offers are difficult to apprehend and perceived fee of interest is high, whereas public sector banks are perceived greater dependable with lower prices of interest. In Indian banking industry where differentiation is now not plenty in terms of prices, it is required to be fair and transparent except hidden charges. To satisfy these dollars-and-cents conditions, accounts want specific services. All the approaches and approaches of marketing are used so that in the end they induce the accounts to do business with a particular bank. This requires satisfaction of accounts. Traditional advertising and marketing admixture can't be amenable to total marketing affection. It requires all the ABCs of service advertising admixture. Service marketing admixture plays an essential role in dollars-and-cents institution marketing. It consists of the chromatic ABC of an advertising program which needs to be considered in order to efficiently administer the advertising approach and positioning in the calls. It helps in distinguishing immolations of a particular bank from those of its challengers.

Research Methodology

It's paper based on secondary data regarding role of services marketing strategies in the banks, how marketing strategies could be implemented for growth of PSU banks in INDIA. This is conceptual paper written for the evaluation of available literature on PSU banks and role of services marketing in it. Marketing is way and process of identifying unfulfilled needs, and satisfying them with some profit to the organization. In case of PSU banks marketing shall play crucial role so that they can face tough competition from the private sector banks.

Research Questions:

1. What is role of service marketing in banking?
2. How service marketing can be implemented in banking sector?
3. What has to be done for employee engagement in PSU banks
4. How PSU marketing is different from marketing done by private banks?

Review of Literature

1. Kaura V., (2013)- This paper on services marketing mix, with special reference to banks, to deals with the bank marketing aspects of banks, like presenting various offerings to fulfill customers' monetary wishes and wants, to fulfill these monetary needs, clients prefer unique services. It was found that, service advertising and marketing combine performs an essential function in financial organization mercantilism. It's a number of factors an advertising announcement which necessity to be viewed in ordination efficiently put in force the advertising and mercantilism approach and emplacement in the chain store. This article examines pricing fairness and transparency, distributing banking services in a convenient manner, employee conduct, consumer education, tangibility, and procedure through technology applications as essential features in Indian banking.
2. Thimmaiah, N. B., Maroor, J. P., & Shainy, V. P. (2013)- In this paper Indian banking scenario was discussed, banks in India have undergone a range of ups and downs in our country. It was found that, net banking, core banking, e payment, e statement, on line share trading, debit and credit card, door customer etc. has revolutionized banking industry, The paper also highlights the troubles faced by using bankers in dealing with customers in the environment of ever-increasing and changing expectations, competitions from private area and other banks, tapping untapped 25% rural citizens, customer nice problem etc.. This paper highlights some of fundamental issues confronted by banks today
3. Dhar, S. (2013). This paper on about financial inclusiveness, and bringing unbanked citizens under banking services. The profiles of Business Facilitator and Business Correspondent have been developed so that they may act as agents for banks that are dealing with bad villages right away. It was discovered that the cycle of financial inclusion cannot be completed unless the rural populace's focus and involvement are both present. The goal was to identify the challenges that the Indian government is encountering in implementing the concept of monetary inclusion. Another aspect was to expand investor awareness programs, even in remote communities, in order to secure maximum retail participation in the market.
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Several modifications to their operations have been effectively implemented. Institutions are today extremely competitive, thanks to globalization and the arrival of larger private and international banks.

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however also require the a good deal wanted seed capital to begin the business. Many MSME plants also want extra capital for technological know-how up gradation, potential expansion growth, and advertising and for imports and exports. Banks in India have been offering financial services to several organizations their department offices, regional offices in end-to-end the fundamental quantity and comprehensiveness of the territorial division.

Discussions and Conclusions

It was understood that, role of service marketing in banks is very crucial, However, in order to survive and expand, banks will need to embrace a full-fledged marketing strategy to keep their customers happy and pleasant. In this new method, the marketing scope prevalent in the banking sector is examined beneath the services marketing framework. Customers' expectations are now quite high, and banks in India will also have to implement service advertising standards in their day-to-day operations in order to survive and flourish. All of the aforementioned consumer advertising and marketing aspects focus upon customers. Differentiating one's products from competitors is a fundamental necessity for every service company, including PSU banks. the customers' perceptions and expectations in detail.

Price and transparency in banking services, speed in distributing banking services, courteous personnel conduct, initiatives for customer education, and use of technology all play key roles in distinguishing offers from rivals. Banking sector its performance play a necessary function in an economy. The present day situation of Indian banking area is very dynamic and competitive. To preserve market share it is essential for PSU banks to gather large customer base. Customers today are very a great deal aware about quite a number economic offerings and institutions, in addition they are spoilt for choice. Therefore they can only be retained by means of providing fine services. Marketing done by private banks is about customer delight which is missing in case of PSU banks

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ACCOUNTING TECHNIQUES FOR ENVIRONMENTAL ISSUES

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ABSTRACT

This paper presents the research on how accounting techniques can be developed for environmental issues. Here I have tried to find out the solutions with the help of following questions:
What does an environment mean to us? How does it help us in our living? How do we disturb environment from doing so? What is its impact on environment? How does it effect on our living? How can we measure costs of these effects? What are the techniques to reduce these costs? How can environmental accounting be one of the techniques? How to define Assets and Liabilities in Environmental Accounting? How should be its reporting?
The analysis took as a starting point the standard accounting system followed by innovations in accounting system. As we all know traditional accounting system is responsible for only generation of profit out of the cost incurred for the same. Hence most of the industries try to earn more to show their healthy position to the investors. Here they neglect employee values and environmental values. This results in unhealthy society and environment at large. It results in the research in HR Accounting and Environmental Accounting.
In this paper I have started with the water vapour cycle while mentioning origin of the research problem. According to NASA Oceanography, human activities disrupt the water cycle, resulting in a warmer planet and a far higher surface temperature of 67°C. While thinking of profits we need to think of earning satisfactory profit. And we can not be satisfied without environmental satisfaction.
In last part of this paper a try is made to classify the environmental costs and to give them proper accounting treatment, following to which the reporting of the results of Environmental Accounting in financial statements is suggested. Lastly the requirements for serious implementation are mentioned in discussion part along with few examples of current scenario of EA in industries like Asian Paints (India) Ltd., Goodlass Nerolac Paints ltd., Maruti Udyog Ltd. and ITC Ltd.

Keywords: *Environmental Accounting, Carbon Credit, Environmental Liabilities, Environmental Assets.*

Introduction

"Vrukshavalli amha soyare vanachare, pakshi hi susware alavitee"
Saint Tukaram

"Interest is growing in modifying national income accounting systems to promote understanding of the links between economy and environment." [1]

The quotes mentioned above very well define the subject of the research work. The first one is by Saint Tukaram, who told us the importance of nature conservation through his poems (Abhang) around 400 years back. We also can find the same from Dnyaneshwari written by Saint Dnyaneshwar. According to him, before constructing a town we need to build up forests so that we can live a healthy life.

In this changing era of global economy, it is very important for us to know the changing economic trends and its effect on the environment. As every organization, from accounting perspective, is aiming to earn more and more profit, actually from economic perspective they are trying to make satisfactory profit. The former has concern with short term business activity whereas latter has concern with long term existence.

Now the question that every organization asks themselves is what all things they need to consider while planning for their business activities so as to make satisfactory profit. The expected answers may be keeping price low, quality control, employee satisfaction, after sales service etc. Here we think primarily about our responsibility towards customers and then our employees. But one important factor we normally forget which directly or indirectly help us in achieving our organizational goal. That is Environment. We can not achieve our goals without the help of nature and environment. So we need to identify our responsibility toward environment and also show their effect in our financial statements. Here the need comes for Environmental Accounting.

Before the discussion begins for environmental accounting, firstly we need to know the basic concepts of accounting.

A) Definition of Accounting: It is an art of recording, classifying and summarizing in a significant manner and in terms of money transactions and events which are, in part at least, of a financial character and interpreting the results thereof.

- American Institute of Certified Public Accountant

B) Branches of Accounting:

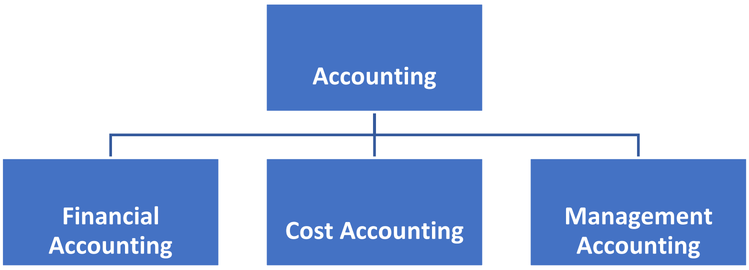

Fig. 1: Classification of Accounting

1. Financial Accounting: It is historical in nature since it includes recording, classifying, and summarising past occurrences. It is historical accounting, often known as financial accounting, whose major goal is to create financial statements that reveal the business's income/loss and financial condition based on events that occurred during the accounting period.

2. Cost Accounting: It depicts cost classification and analysis based on functions, processes, products, and centres, among other things.

3. Management Accounting: Where financial and cost accounting finish, management accounting begins. It is concerned with the processing of financial and cost accounting data for managerial decision-making. It also looks at how managerial economic ideas can be used to make decisions.

C) Upcoming branches of accounting:

1. HR Accounting

2. Environmental Accounting

HR Accounting: It deals with the accounting of Human Resource that every organization has or need to perform the activities of an organization to achieve the desired goal.

Environmental accounting (EA):

It is a systematic study of the relation between organizational structure and the environmental costs and implementation of the strategies so as to bring equality in the costs of these two.

One may define EA, in simple words, as a process of assigning liability towards environment and suggesting/finding and implementing solutions to convert liability in to assets.

"Mechanism that enable enterprises to measure, analyze, and announce the cost for environmental conservation in business activities and the effects quantitatively (monetary units or physical quantity units) as much as possible - effects that were achieved by the activities - for promoting the tackling of environmental conservation efficiently and effectively while maintaining the friendly relationship with the society in order for sustainable development."

From the above definitions the important elements which are necessary in the accounting can be identified. Those may be environmental costs and its effective measurement in monetary terms. These costs and its measurement is discussed in section II (D) and Section III (A) respectively.

Now let us see how the need for accounting of environmental issues comes in the picture.

Origin of the research problem

Whenever we talk about environment the discussion begins with Water. Let us discuss water cycle/ water vapour cycle first.

A) Water cycle:

The water cycle, also known as the hydrologic cycle, depicts the continual movement of water on, above, and below the Earth's surface as shown in the figure 3 above. Since the water cycle is truly a "cycle," There isn't a beginning or an end to it. At various points in the water cycle, water can change phases from liquid to vapour to ice, with these changes occurring in the blink of an eye and over millions of years. Individual water molecules can come and go in a heartbeat, yet there is always the same amount of water on the surface of the globe, despite the fact that the balance of water on Earth remains pretty consistent over time. [2]

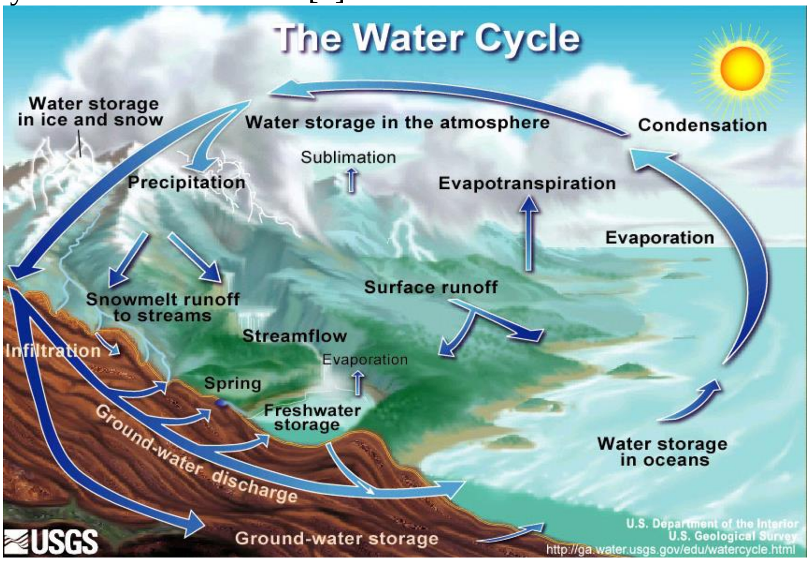

Fig 3. Water Vapour Cycle

B) Nature cycle: This cycle is related to the various seasons. In India there are three seasons- summer, monsoon, and winter each having four months duration one after another. Still these cycles are there but its duration has changed over the time. In India water vapour cycle takes around one year to complete. i.e. every year we expect Monsoon on 7th June and ends in October. But in recent years, picture has changed. We cannot assume the same period for Monsoon. Also, on one year we face heavy rain fall and on another no rain at all.

Why has this change occurred? Who is responsible for it? How can we cope up with this? Is there any solution to bring this cycle back? We need to be very serious to find out the answers of these questions.

B) Reasons for change in the cycle

Life on Earth existed in a natural environment with adequate water supplies from rain, unpolluted springs, streams, rivers, and wells throughout its early history. Water was relatively pure, with only a few naturally occurring chemicals present. We have thrown all kinds of pollutants into the environment since the Industrial Revolution, and especially after World War II, almost universally poisoning our precious, life-sustaining water supplies. When hazardous chemicals are introduced into our system, the function of water is harmed. As our bodies degrade into toxic cesspools, our health suffers. If we think the water, we are drinking is just H2O, there is need of thinking it again. According to some research, our water contains an incredible 75,000 chemical constituents, but the EPA has only developed enforceable safety guidelines for 87 of them. Many of these substances have the potential to be detrimental to human health. Each year, about one million people get sick from drinking contaminated water, according to the Atlanta-based Center for Disease Control, with approximately 1,000 cases tragically ending in death. [3]

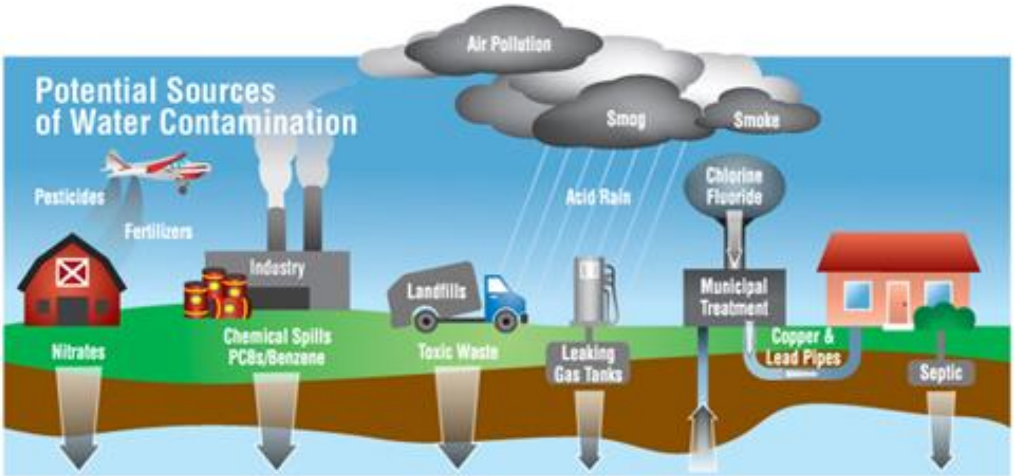

Fig 4. Environment Contamination Sources

The following are examples of human activities that influence the water cycle:

1. Agriculture
2. Changes in the atmosphere's chemical makeup
3. Dam construction
4. Deforestation and afforestation
5. Groundwater extraction from wells
6. Abstraction of water from rivers
7. Urbanization (industrialization, creating infrastructure and other comfort products)

C) Effects of change in the cycle on climate

Solar energy is used to power the water cycle. Evaporation from the oceans accounts for 86 percent of worldwide evaporation, lowering ocean temperatures through evaporative cooling. The greenhouse effect would result in a substantially higher surface temperature of 67°C and a warmer world without the cooling impact of evaporation.[4]

D) Price of pollution and Costs for human being due to these changes:

World Bank officials conducted research on the cost of pollution in India in 1992 (M. Balachandran 2002), which demonstrates the financial impact of the primary issues. They estimate that environmental damage costs India roughly Rs. 34,000 crore per year, or about 9.5 percent of GDP. [5]

Environmental Expenditures/Costs: "Environmental costs are actual expenses incurred by industries, households and the government to avoid environmental degradation or to eliminate the effects after degradation has taken place. They include all those goods and services that are, or are used as, an immediate response to environmental degradation caused by production units, government and households. They do not cover activities included to mitigate effects borne, in particular by households". [6]

Environmental Expenditures/Costs are those costs which incurred to protect the environment or natural resources like water, air, land and atmosphere. It also includes the cost for physical as well as psychological destruction of living creatures.

These costs may incur after or before the effect (destruction) take place. We can classify these costs in to following categories as per their nature.

1. Pre-costs: It includes the costs which help in preventing us from all such destructions. Here we assume the costs well before its occurrence and we make the necessary arrangements to protect the environment. E.g. installing water purifier, plantation and equipment to reduce noise/vibration and air pollution etc.

2. Post-costs: It includes those costs which have incurred in anticipation of the incurred environmental losses due to the organizational/human activities e.g. government funds the farmers due to natural disasters, Social campaigning after knowing the environmental and psychological destructions etc..

Further we can classify these costs as per their useful life which, again, is going to help us in their accounting effects.

3. Capital expenditure: These are the expenses, the benefit of which is derived over

number of years. E.g. installing water purifier, plantation and equipments to reduce noise/vibration and air pollution etc.

4. Revenue expenditure: These are the expenses, the benefit of which is derived during an accounting period. E.g., depreciation on the capital assets, social campaigns etc.

5. Deferred revenue expenditure: These are the revenue expenses but the benefit of it is derived over few accounting years. E.g., Research and development expenses, huge social campaigning etc.

E) Who is responsible?

The answer to above question can better explained with the help of the following cycle.

1. We Try to earn more money to satisfy our needs
2. We Try to reduce cost
3. We use cheap and less costly inputs to reduce cost of production
4. We use shortcuts to get work done as quick as possible
5. Water waste, air pollution, noise pollution etc.
6. Unhealthy atmosphere (water, air, food etc.)
7. Increase in physical as well as psychological deceases
8. Increase in medical expenses
9. Increasing insurance and other health/risk related expenses
10. We need more money as our expenses increased

And cycle continues…….

Accounting for Environmental Issues

A) Defining liability toward environment….Process:

1. Study of external environment (nature): Every organization need to study the nature. As everyone thinks what they can get from the nature, we need to think what we are giving to the nature. We need to see whether sufficient greenery is available to absorb the air pollution as well as water waste. For such analysis study of environmental science is required.

2. Study of internal environment (process, layout etc.): Internal environment includes the employees, organizational structure, plant layout and the processes. Creating healthy work conditions is as important as earning profit. Making employees aware about their responsibility toward environment as well as deciding proper layout to carry all processing efficiently will lead to reduce the wastes.

3. Study of kinds of harmful elements: Every organization should conduct the in-depth study to know the existing as well as possible harmful elements which are been used during the production process and which comes out with the finished product, may be as a part of it or as a waste. Here studying the amount of these elements is very important factor.

4. Comparing those with the environmental arrangements/assets: Once we come to know the harmful elements and the amount of their output, we need to compare those elements with the external as well as internal environment to know the discrepancy/ variance.

5. Computing variance: in environmental accounting variance means the discrepancy between the environmental arrangements/assets and the total output of harmful elements. If former is more than the later the difference will be known as favorable variance. This also may be treated as idle Asset. In opposite condition the result will be adverse variance which in turn will be treated as our Liability toward environment.

E.g., A manufacturing unit's output (harmful elements) is CO2, and the amount of output is 1000 units per day. Now the environmental arrangements needed are plants that can absorb this much CO2. The existing arrangement includes 700 trees which are expected to absorb 700 units @1unit of CO2 per tree per day. Here the variance of 300 units is the net environmental liability (NEL) of that organization and to reduce it, they need to make arrangement of 300 trees.

In other case suppose for same level of output (harmful elements), arrangement of 500 trees is there which can absorb 1500 units @3 units of CO2 per tree per day. Here the variance of 500 units is the net environmental Asset (NEA) which can be expressed in terms of trees as 500/3=167 trees.

B) Selecting proper strategy/ies

We can adopt the following strategies to reduce the environmental liability.

1. Changing location: If existing location of an organization is not extendable to create sufficient environmental arrangements that organization may reduce its liability by

shifting the unit to the place where these arrangements exists or there is scope for its creation.

2. Changing Plant layout: If there is waste due to improper material handling or improper plant layout, organization need to make certain changes in it.

3. Changing Product/ product-mix: Every organization produces multi-products. If any product is harmful to the living creatures in the long run, organization need to stop the production of such product and try to find out better and healthy alternative.

4. Defining Input alternative: This is very important strategy among all. As discussed earlier, the main problem begins with human desire to earn more and to make more profit. To achieve it, we try to use cheap and less costly inputs to reduce the cost of production. As a result, output of harmful elements increases. This, in turn, increases our liability. So we need to select best alternative which will reduce such liability.

5. Training: It can reduce the waste and output of harmful elements due to improper material handling, casual working. So training at regular intervals is required.

6. Creating assets: It means to make environmental arrangements/assets.

This includes:

Water pollution- installing water purifier and wastewater treatment facilities for water waste, Air pollution- plantation, catalytic converters, Noise/vibration- equipments, Land- construction work for nature conservation, land reclamation, land improvement and erosion control.

Here plantation plays and important role in reducing pollution. Everyone should prefer this alternative because it is a natural source. Few trees like Banyan tree (Kalpvruksha) and Kagzi lime (Kadu-limb) and Tagitus erecta (Zhendu) for clean and healthy atmosphere as these trees have more capacity to absorb CO_2. Computation of assets will be as mentioned in computation of variances.

7. Social cause campaigning: For the organization who are in the production of habitual products e.g cigarettes, tobacco, alcohol or even tea and soft drinks, it is necessary for them to do social campaigning to create awareness about the effects of their product on our health. Social campaigning doesn't only mean to print warnings on the packing of the product but to create awareness among those who are not using these products.

Financial Reporting

Following things are important while reporting the results of environmental accounting

1. All equipments purchased to reduce environmental destruction should be shown as fixed asset at its book value less/add depreciation/appreciation. Its capacity to reduce environmental destruction, in monetary terms, should be shown in inner column. This means if an asset is purchased for Rs.10,00,000 less annual depreciation of Rs. 1,00,000 equals Rs.9,00,000 should be shown in outer column and the monetary value of its annual capacity in terms of protecting environment from destruction is Rs. 2,00,000 should be shown in inner column. The value of this capacity installed is shown in the table 1 with the '####' sign. Asset Appreciation is applicable only for trees (plantation) which have planted for the purpose of protecting environment.

2. All environmental costs can be measured in monetary terms based on the environmental destruction and that will be shown as liability. Here the calculation of net environmental liability (NEL) will be:

NEL= Annual Environmental cost – Annual capacity installed

Here annual capacity installed means the value of the assets which we are showing in inner column. If the answer is positive then one effect should be, showing it as liability and second effect should be at debit side of Profit and loss account. If it comes negative it should be shown as an indirect gain in Profit and loss account and second effect should be, showing it as additional asset in balance-sheet.

3. For revenue expenditures like social cause campaigning, advertisements etc. effects should be on debit side of Profit and loss account

4. For deferred revenue expenditures like R&D, heavy advertisement, expenses at primary stage (preliminary expenses) etc. the balance amount should be shown in the balance sheet asset side under the head Miscellaneous Expenses and the amount

written-off should be shown at debit side of Profit and loss account.

(Refer the appendix: Table 1. Financial Reporting)

Discussion

Though study is going on from last 20 years on the same issue, the implementation part is lacking. Following are few companies which are stepping toward a healthy way of making profits.

Asian Paints (India) Ltd, (1993-94):

Ecology and safety: Samples of treated effluents are tested for compliance with standards on a regular basis.

Goodlass Nerolac Paints Limited (1993-94):

Pollution: To safeguard the environment and ensure industrial safety, the Company monitors the measures in place in line with the Pollution Control Act on a regular basis. The organization makes adjustments on a regular basis to guarantee that all statutory requirements are met.

Maruti Udyog Limited (1993-94):

Environment: The current effluent treatment plant was modified to handle the increased effluents generated as a result of the capacity expansion. Non–methane hydrocarbons in the Paint Shop and Engine Testing Shop, as well as ambient air quality, stack emissions, and effluents, are all monitored on a regular basis, and the parameters are kept well within prescribed limits. Green belt development around gas turbine and R&D areas was bolstered by the planting of 3000 extra saplings. [7]

ITC Limited: ITC has been 'Carbon Positive' for the past three years, sequestering/storing twice as much CO2 as it emits. It has also been 'Water Positive' for the past six years (generating three times the potential for Rainwater Harvesting than ITC's net usage). Solid waste recycling is around 100 percent. All of ITC's environmental, health, and safety management systems meet or exceed worldwide best practices. [8]

Even while firms are taking steps, the fact remains that most companies report environmental data in a descriptive rather than a financial style, meaning that the degradation of natural capital is not taken into consideration when calculating corporate earnings. Here we may require government intervention to make environmental accounting compulsory to all organizations and further to the households as well. This is the only solution we may get to make our beloved Earth happy again.

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Appendix: Table 1. Financial Reporting

Liabilities	Rs.	Rs.	Assets	Rs.	Rs.
Owner's Equity			**Fixed Assets**		
Share capital		xxxx	Land and Building		xxxx
Reserves and surplus		xxxx	Machinery		xxxx
			Furniture		xxxx
Outsider's liability			Equipments for: Water conservation Chemical impact reduction Pollution control	#### #### ####	xxxx xxxx xxxx
Loan: Secured Unsecured	xxxx xxxx	xxxx	**Investments**		
Net Environmental Liability Water waste Chemical waste Pollution Psychological effects	xxxx xxxx xxxx xxxx	xxxx	Equity shares of xyz ltd.		xxxx
Current liabilities			**Current Assets**		
Accounts Payable Bills payable Bank overdraft Outstanding Expenses Advance Income	xxxx xxxx xxxx xxxx xxxx	xxxx	Accounts Receivable Bills receivable Cash at Bank Cash in hand Outstanding Income Prepaid Expenses		xxxx xxxx xxxx xxxx xxxx xxxx
			Miscellaneous Expenses		
Total		**xxxxx x**	**Total**		**xxxxx x**

WORK LIFE BALANCE AND ITS IMPACT ON JOB SATISFACTION EVIDENCE FROM MSRTC DEPOT, PUNE

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ABSTRACT

Work life balance can be a major factor in job satisfaction, and we examine the impact of the issue on MSRTC depot and Job Satisfaction level. We find that employees who feel more satisfied with their work life balance show higher levels of job satisfaction. The study was implemented at the MSRTC depot in Pune. A sample of 50 employees with varying job profiles was chosen through stratified random sampling for this survey. The data for this study was collected using interview method. A high proportion of respondents felt that their work life balance was not satisfactory but had no plans to leave their jobs. More women were found to be dissatisfied with their work life balance than men. Employees working in the administration department, garage or garage sub-station, and mechanical department were found to be more satisfied than the other employees. Employees who are dissatisfied with their work life balance have a high intention to quit their jobs. Employees who are satisfied in this domain have a high intention to stay in the present job.

Keywords: *Job Satisfaction, Work Life Balance, MSRTC Depot, Service Quality*.

Introduction

The study aims to understand the relationship between work life balance and job satisfaction. The study was carried out at MSRTC depots, Pune. The data was collected in the form of self-reported questionnaire survey by means of interview method. A total 50 employees were interviewed for knowledge about their work experience. Data analysis has been done with chi-square test statistic to find out any association or difference in perceptions about job satisfaction with relation to work life balance at the depot level against other levels in MSRTC organizational hierarchy.

Work-life balance is a major issue for many people as they juggle responsibilities at work with those in the home. The phrase was coined to describe this sense that life can be overwhelming. The idea was that one's life is all-important, and, if it is not balanced equally with other areas of life, then one will be unhappy because of this lack of balance (Saleem, 2017).

The effects of work-life balance on job satisfaction were previously examined by Rosenfield (2001) who found evidence that work-life balance contributes to job satisfaction for men and women, but only among employees whose jobs are fairly balanced with respect to stressors. This study found that both men and women feel more satisfied in jobs where they have fairly equal amounts of personal time and work time. Furthermore, the effect becomes larger for women than for men.

Also, a study by KUMARI (2017) showed that women who experience greater amounts of work-family interference exhibit lower levels of job satisfaction than those women who experience less interference. As such, having work-life balance is important for men and women as it contributes to their satisfaction with the job they have.

Preiss & Finanger (2011) conducted a study which found that individual differences in job satisfaction and life satisfaction were negatively correlated with work-family burden. In other words, people high in job satisfaction reported less work-family burden than those with low job satisfaction; likewise, those high in life-satisfaction reported less work-family burden than those low in life satisfaction. Furthermore, this finding was not explained by year of birth; thus, either individual or societal factors were at play.

Another study focused on the relationship between life satisfaction and job satisfaction: the idea is that the higher one's life satisfaction is (i.e., numbers of friends and family members), the more satisfied one will be with his/her job. The study found that those high in life satisfaction have a significantly better view of their jobs as compared to those low in life satisfaction, as well as a greater willingness to stay at their jobs even if they didn't enjoy the work they performed. In other words, those high in life satisfaction have a better perspective on both their job and their lives overall.

Objectives of the study

1. The current study aims to explore the impact of work life balance on job satisfaction level of employees in MSRTC depot, Pune.
2. It also explore various factors influencing work life balance on job satisfaction level of employees in MSRTC depot, Pune

Research Methodology

The sample for this study was chosen through stratified random sampling and interviewed in order to understand the perceptions of employees on work life balance and its impact on job satisfaction in different job profiles. The data for this study was collected using an interview method. Employees were asked about their job characteristics, experiences, and expectations as well as how they feel about having such a diverse range of job profiles. A sample of 50 employees with varying job profiles was chosen this survey.

Literature Review

Work life balance is a concept that has been gaining traction within the workforce. This term refers to the idea of an individual's work-life experience, or how difficult balancing both work and family responsibilities are for an individual. In other words, work life balance is a term that refers to how well employees are able to balance the demands of their jobs and the demands of their personal lives. The concept was first coined in 1987 by sociologist James Sebenius from Cornell University who wrote about work participation and social participation (Preiss & Finanger, n.d.).

The year 1987 was not only one of significant change in the workplace, but also for Leisure Carriers (a Cornell student publication). James Sebenius, then a sociology professor at Cornell University, challenged all college students to participate in both their professional careers and student life schedules. Much of his work focused on measuring the link between work participation and leisure participation. He argued that the more time an individual spends working on their profession, the less time they have to enjoy free time or vacation with family and friends. Sebenius was also interested in how this link would be different for college students who had not yet begun their careers. Sebenius adopted the term “work-life balance” to describe his interest in work participation and leisure participation. He claimed that “whatever its label, the notion of balance is intended to capture...theory's central focus on where one devotes one's energy (i.e., effort) over some period of time (e.g., a 24-hour day). ”(Azeem & Akhtar, 2014)

The work-life balance concept has changed over the years. For example, in the 1960s, work life balance referred to how much time an individual spent working versus how much time they spent with their family. However, the meaning of this term has evolved to now refer to how well an employee can manage both their professional and personal lives (Haar et al., 2014).

Although the term “work-life balance” was not used until 1987 by Sebenius, other similar concepts have been discussed for decades. For instance, in 1970, Rensis Likert wrote that individuals are able to achieve a balanced life if they are happy in both their professional and personal lives. Likert also referred to the idea of “work-leisure balance” in his 1970 book, "The Human Side of Enterprise"(Jang et al., 2011).

Work-life balance is not only related to the amount of time an employee spends working versus how much time they spend with their family, but also to how well an employee can manage both work and life (Agha et al., 2017). Many factors have been identified that contribute to work-life balance. Work-life balance is affected by individual characteristics that are considered along with organizational variables. These characteristics include task dependency vs. autonomy, lifestyle and life stage, and gender (Maeran et al., 2013).

Task dependency versus autonomy is defined by employee's job classification. For example, in a highly task dependent role, feedback is required in order to complete work assignments. A highly task dependent individual will require constant communication with their supervisor or team members in order to do their job well. An individual with high autonomy has the freedom to work independently or on a team without constant communication with supervisors or others. Work-life balance also relates to the level of autonomy individuals possess in their daily tasks. A high status and salary come with very little autonomy and long hours. An individual in a high autonomy role may have many responsibilities, but is able to shape their own professional life (Kanwar et al., 2009).

Lifestyle and life stage are defined by the time of day when work begins in relation to when work is completed. For example, individuals in their 20s have an opportunity for an unpredictable, frequent schedule that varies at each work location. With less time constraints on personal activities, these individuals are more likely to be able to balance professional and personal lives (Saleem, 2017).

Gender can create issues with time management for both men and women if they do not consider the gendered norms of their workplace culture. Although women and men may equally desire to balance work and family life, they differ in the strategies they use to achieve their goals (Malik et al., 2014).

Work-life balance is a state of equilibrium between an individual's personal and professional lives. Work-life balance is the topic of interest for many employees as it affects job satisfaction, stress levels, engagement levels, and turnover. In a study of 987 employees from 29 countries it was found that satisfaction with living arrangements had more influence over job satisfaction than work-effort intensity. Additionally, results from this study found that those who reported less work-life imbalance were more likely to stay at their job compared to those who reported a higher amount of imbalance (Bellmann & Hübler, 2020).

Many jobs can be very demanding and stressful, which differs from one individual to another. Whether a job has an inherent work-life imbalance or a particular employee’s work-life balance is highly dependent on job characteristics. In addition, employees who have more autonomy in their work have greater potential for achieving a higher level of work-life balance (Azeem & Akhtar, 2014).

A multitude of factors contribute to the impact that work-life balance has on an employee's overall performance. In a study conducted by the University of Chicago Booth School of Business examining 987 employees from 29 countries it was found that satisfaction with living arrangements had more influence over job satisfaction than work-effort intensity(Haar et al., 2014).

Result and Discussion

Work-life balance is one of the most important factors in achieving happiness and job satisfaction in the modern world. And an MSRTC depot located in Pune reveals that when workers are able to balance work with their personal lives, they are less likely to experience burnout or depression caused by prolonged stress levels. The work-life balance in Pune is in a delicate balance and any issue which prevents it from being in harmony can lead to an unhealthy life, with mental and physical implications for both adults and children. People who adjust their lifestyles with the hectic pace of modern day working are less prone to depression, stress related ailments and other issues.

In this study MSRTC depot in Pune has been observed closely to check the impact of work-life balance on its employees. MSRTC is a government undertaking which provides transport services across India. The company has a large number of employees working at different depots throughout the country. A depot is a location where buses, trucks and/or other vehicles that are used by the company are repaired and cleaned. These depots also have drivers who operate the vehicles.

An employee of MSRTC Pune depot, who did not wish to be named, said that although they get 2 days off every week, they hardly get enough time to spend with their families. "We either have night shifts or operating hours stretch for 9 - 10 hours which is too much," she added. This is because of the fact that public transport is in high demand in Pune City which places a lot of work for MSRTC employees. With this high demand for public transport, there are long hours at the depot. "Most of us work 12 - 13 hours. If we are lucky, then we are given 14 hours. Some people come home after 11 PM but this is rare," she said about the level of work at the Pune depot. The employee also mentioned that the number of staff working at any one time is 600 to 700 which means that no one can work steadily over a longer period of time.

This seems to be the reason why people often complain about being stressed at their workplace even though they have work-life balance issues at home. Stress manifests itself in many ways, including sleep deprivation and feeling tired or irritable. No one at the depot seems to have a healthy work-life balance as they work long hours and do not get much time to spend with their families. This is a common problem for MSRTC employees.

The MSRTC employee added that the company should improve their working conditions as it can be negatively impacting their lives. "I have seen a lot of people taking sick leaves. Even I take off because I do not feel like working for such long hours," she said, adding that it is very tough for MSRTC employees to endure such long shifts and tough schedules.

Another employee of MSRTC Pune depot, who wished to remain anonymous, said that he also has faced similar issues. "Our shifts are long and we hardly get time to spend with our family. I am able to see my family only once or twice a week," he said. This lack of time can be very negative for the mental health of the employees. It can lead to stress which is the root cause of several ailments. The stress levels at MSRTC Pune depot are so high that many employees suffer from depression and anxiety attacks regularly. A few weeks back, an employee fainted at the site after complaining of chest pain due to stress related issues. The employee was referred to a hospital for treatment and the company took it as a sign of stress.

The employees share this concern with each other as well as their doctors. "We talk to each other about our work-life balance issues because we are all in the same boat," said an employee who wished not to be named. Despite this, there are many employees who are not coping very well with the situation at their workplace. Once they get ill, they are unable to work for several days which means that they cannot help themselves financially or emotionally during that time. Many employees live in the nearby area and travel to their workplace by train or bus. The commute can be a long process which adds to their stress levels. Some employees also come from Ranchi, a city in Jharkhand, to work in the Pune depot. They travel hundreds of kilometers every day by road which takes several hours when they have night shifts.

Because of this fear of being stressed from work, many people take time off when they are sick or injured. This means that they do not contribute financially towards their family until they recover fully. This also adds stress on them because of the fact that they cannot bring in an income for themselves and their families while taking off. Another reason is that people often land up in an emergency situation after they are actually treated. This means that they cannot work for several days which mean that they cannot help themselves financially or emotionally when they are sick.

Another reason for this is the fact that when someone goes home on leave, there are no staff to take over their job at the depot. The standard of the depot falls when this happens. The MSRTC employees can do little about these instances but it only shows how many of them have problems with their work-life balance at present.

The MSRTC employees also mentioned that they were stressed by the nature of the job. The long hours that they put in on a daily basis seem to be taking their toll on them. "We are overworked and underpaid," said another employee who wished to remain anonymous. Distribution of work at MSRTC depot is very unbalanced with many people doing work which does not require experience or effort, while there are others who do more intensive work but still get paid less than others. "This is stressful because we do not get our calculative increases like everyone else," said another employee who wished not to be named.

The MSRTC employees also share this concern with each other as well as their doctors. "We talk to each other about our work-life balance issues because we are all in the same boat," said an employee who wished not to be named. Many people who work at the depot complain that they do not get enough breaks and that they can suffer from sleep deprivation and headaches after working for very long hours. Some of the MSRTC employees also suffer from depression and anxiety due to stress and lack of time with family and friends at home. "We have always been working in a stressful environment," said another employee who wished not to be named.

Several employees who take part in the survey interview said that they would like to work at the depot but that there were very few opportunities for them. "There are many people who look forward to working here but then no one is given any employment," said an MSRTC employee. The other employees also said that they would like to take up jobs at the depot but could not because of other jobs or family responsibilities.

In order to deal with this issue, the MSRTC has considered giving jobs to senior citizens. Many senior citizens from cities such as Ranchi and Pune offer their services in the depot and do not get paid. "If we give them a job here, we will be able to get their service at a rate well above what we pay them," said another employee who wished not to be named.

There is lack of experience in the MSRTC Pune depot and many young people wish to acquire such experience before moving ahead in their careers. of communication between MSRTC and MSRTC employees. "We are facing many problems with the job but there is no communication with MSRTC so it is difficult to know what is happening," said one of the employees who wished to remain anonymous.

Another employee who wished not to be named said that there was no co-ordination between different departments of MSRTC and depot employees. Because of this, many issues go unresolved leading to lots of disrepair at the depot. For example, toilets are not cleaned regularly by workers. They cannot even comprehend why some toilets become unusable even after maintenance work which should have been done at least once in five months.

The employees also do not get paid for accidents at work. There is rarely any improvement in the working environment of the depot and this adds to their stress levels. According to one of the doctors, some people who work here are afraid that they might lose their jobs if they fall sick or take any time off. They are also afraid that they will be labelled as "weak" by other employees if they cannot work on some shifts. This means that people who are ill prefer not to disclose it because of fear of rejection by others at work. This also means that the employees at the depot feel very isolated because they have nobody to turn to. Nobody from MSRTC or their superiors come to check on them although they have been working there for a long time.

In Pune, we had spoke to different employees who work at the depot and asked them what they wanted from MSRTC and what changes they would like to see in it. The majority of them said that they wanted their problems fixed by MSRTC and that there should not be any discrimination in pay and job opportunities for employees at the depot. Many of them also said that they wanted more money and better working conditions. ".

"Our salaries need to be increased," said Vishal Sharma. Others also stated that their promotions had not taken place for quite some time. One employee even stated that he had been working at the depot for the last six years but he still did not have a promotion to a job with better pay or responsibility.

The employees also feel that there is a lack of communication among MSRTC and its employees. They wish to see co-ordination in the distribution of work, between different departments and departments within MSRTC such as finance, HR, maintenance etc.

The MSRTC depot is managed by a large number of staff but they do not always have enough opportunities for career progression or career growth to workers from various departments. However, MSRTC officers only come to the depot twice a year for a few hours. This lack of communication and co-ordination leads to a lot of problems, said some of the employees.

Many employees said that they wanted better working conditions but MSRTC did not take care of them on its own accord. They would have liked to see MSRTC take care of their work conditions on its own accord through some initiative such as giving money or providing free food or drinks, or giving them free training sessions. However, this never

took place even though they had many requests for it.
According to some employees, this lack of initiative on the part of MSRTC is because of the lack of communication between different departments of the organization. Some employees also requested MSRTC for better co-ordination with other departments within the organization and for more initiatives such as employer-sponsored health care and free food and drinks. Another request was for a day off once in a while so that they could go home and rest. They also wanted to be given training sessions so that they could learn new skills and increase their knowledge about their work. The MSRTC Pune depot is an example of how one organization runs things in India. Department of the organization is not able to communicate or co-ordinate with other departments or with other employees which leads to problems. However, the depot employees are very patient despite their issues and do not wish to leave MSRTC. "We should be given proper training and there should be no discrimination in pay and job opportunities for people at the depot," said one of the employees who wished not to be named.
We spoke to different employees who work at the Pune MSRTC depot about what they wanted from MSRTC and what changes they would like to see in it. The majority of them said that they wanted their problems fixed by MSRTC and that there should not be any discrimination in pay and job opportunities for employees at the depot.
Many of them also said that they wanted better working conditions but MSRTC did not take care of them on its own accord. They would have liked to see MSRTC take care of their work conditions on its own accord through some initiative such as giving money or providing free food or drinks, or giving them free training sessions. However, this never took place even though they had many requests for it.

Conclusion

The conclusion is that the evidence from the MSRTC depot in Pune, India provides strong support for job satisfaction-as well as moderate to weak support for work life balance-to be tied to the outcome of performance. Work life balance and job satisfaction should be considered simultaneously and concurrently when predicting outcome of performance and outcome of happiness in an organization, because they go hand in hand with workplace effectiveness and workforce engagement respectively. The findings from the study have implications for workplace effectiveness and workforce engagement. The results of this study can serve as a basis for developing a work life balance strategy aimed at improving job satisfaction and performance at the same time.
The study also reveals that while working in a Pune depot of the Maharashtra State Road Transport Corporation (MSRTC), all staff members fear being transferred or being laid off. In addition, there is no promotion option in government jobs, which makes it difficult for employees to move up within one organization. The depot in Pune is one of the oldest in the State and has 30 buses. Over 12,000 employees work in the depot. The average age of workers is around 25 years.
The study suggested that based on employees responses MSRTC need to pay more attention towards providing an environment where employees can make decisions about their work/family balance in order to attract and retain high performing employees.

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A STATUS REPORT ON THE ICT INFRASTRUCTURE FACILITIES OF ACADEMIC LIBRARIES: SPECIAL REFERENCE TO MANAGEMENT INSTITUTES AFFILIATED TO SPPU

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ABSTRACT

The present study reviews the current state-of-the-art information and communication technology infrastructure in the libraries of management institutes affiliated to SPPU. This study analyses the hardware specification, software specification, library automation, accessibility of digital library, internet connectivity, tele communication facilities, audio visual equipment in these libraries.

Keywords: *ICT Infrastructure, Library Management Software, Digital, Academic Institutions.*

Introduction

Information communication technology (ICT) plays an important role in present day's higher academic system. As colleges are core sector of higher education system, development of ICT infrastructure facilities in libraries are demand of time to fulfill the information needs of users. ICT infrastructure facility can be described as electronic means of capturing, processing, storing and communicating information and its associated services. ICT infrastructure refers to the hardware or equipment, software applications, and services associated with ICTs, including telecom networks. Hardware, which comprises telephone, computer, LAN network,printer, scanner, fax, camera, projector, Video CD etc. and software that includes windows, Ms Office and others. Thestudy investigates the current state-of-the-art information and communication technology infrastructure in Indian academic libraries.

Objectives

1. To investigate the status of hardware ICT infrastructure facilities available in the institutes under study.
2. To study the status of softwares available in the institutes under study.
3. To reveal internet facilities in the institutes under study.

Literature Review

Konwar and Sinha (2014) conducted a case study of nine colleges in the Barak valley to assess the state of ICT infrastructure and the growth of college library networks. They looked into the fundamentals of ICT infrastructure, such as hardware, internet connectivity, and backup systems. They also looked at operating systems, library automation software, and the areas that had been automated with the software. They also looked into the associations between these libraries and library networks, as well as their membership in consortiums. The findings of their investigation revealed that most college libraries lack adequate infrastructure. Colleges in urban areas have a higher level of ICT infrastructure development than colleges in rural areas. They also discovered that libraries are semi-automated. Their user research revealed that only a few colleges' librarians are constantly connected to the internet. The number of computers in libraries is insufficient, and as a result, students do not have access to the internet for searching; instead, they must rely on the OPAC. According to the researcher, a fund for the development of ICT infrastructure can be created by librarians and college authorities coming up with innovative ideas. With the proper support of college authorities, librarians can make short and long-term plans for the development of ICT. Reddy and Reddy

(2015) conducted research in Sri Venkateswara University's engineering college libraries. They evaluated the automation and hardware capabilities of the library. They research the library's system and application software. They looked at the digital library and internet access in the libraries that were being investigated. They also looked at the colleges' telecommunications and audio-visual equipment, as well as their websites. They identify the factors that have hampered the use of ICT services and infrastructure and propose solutions to improve ICT services and facilities. Choudhary and Sarmah (2017) have conducted similar research. They looked at the ICT infrastructure and how it was used in seven degree college libraries in Assam's Cachar district. They evaluated ICT equipment, internet connectivity, library automation status, consortia access to e resources, and ICT application barriers. They discovered that the majority of the college libraries under investigation are still in the early stages of ICT infrastructure and application. They also revealed that while the libraries have begun to automate, not all software modules have yet been covered. In addition, all college libraries have internet access, though only a few nodes are available. They recommended that users be given more bandwidth and nodes so that they can get the most out of ICT-based resources and services. The concerned college authority should help librarians develop ICT in their libraries by allowing them to attend workshops and training programs to improve their ICT skills.

Research Methodology

A descriptive survey was used for this study. Librarians of Management Institutes libraries affiliated to SPPU are considered for the study. This study is a part of big research. Convinient sampling technique is used and questionnaire prepared in google forms was sent to the librarians. Researcher received 34 responses which were considered for data analysis.

<u>Availability of server</u>

The server is a computer hardware system that is dedicated to running one or more services (as a host) in order to serve the needs of other computers on a network. It was observed that almost all colleges i.e., 34 (100%) were maintaining servers.

<u>Availability of computer workstations</u>

Computers are required in the library to perform various library operations such as accessioning, circulation, fine calculation, and the preparation of various reports, among other things.

The majority of colleges have libraries with fewer than five computers. Only a few management colleges have libraries with more than 11 computers.

TableNo.1: Availability of client/computer workstations

Type of institute/college	Less than 10	More than 11	Total
Management (n=34)	24(70.58%)	10(29.41%)	34(100.0%)

Hardware facilities available in the library

It was observed that majority of institutes were having hardware like printer 34(100%), CCTV32(94.11%), laptop charging facility cctv32(94.11), pen drive 32(94.11%), photocopier 32(94.11%), telephone 32(94.11%), barcode reader/s 31(91.17%), paper scanner/flat-bed scanner 31(91.17%), CD/DVD30(88.23%), Barcode printer 29(85.29%). 25(73.52%) institutes were having external hard disk/drive, 24(70.58%) were having headphones, 24(70.58%) were having video conferencing facility, 20(58.82%) were having SD Card, 20(58.82%) were having LCD projector. Very few i.e., 8(23.52%) libraries were having digital sound recorders and e book reader. No library was having RFID .

Table No.2: Hardware facilities available in the library

Type of hardware facility and technology (n=34)	Yes	No
Printer (Inkjet/Laser)	34(100%)	00(00.00%)
CCTV	32(94.11%)	2(5.89%)
Laptop charging facility	32(94.11%)	2(5.89%)
Pen drive	32(94.11%)	2(5.89%)
Photocopier	32(94.11%)	2(5.89%)
Telephone	32(81.97%)	2(18.03%)
Barcode reader/s	31(91.17%)	3(8.83%)
Paper scanner/flat bed scanner	31(91.17%)	3(8.83%)
CD/DVD	30(88.23%)	4(11.77%)
Barcode printer	29(85.29%)	5(14.11%)
External hard disk/drive	25(73.52%)	9(26.48%)
Headphones	24(70.58%)	10(29.42%)
Video conferencing facility	24(70.58%)	10(29.42%)
SD Card	20(58.82%)	14(41.18%)
LCD projector (multimedia projector)	20(58.82%)	14(41.18%)
Facilities for e-content development	14(41.18%)	20(58.82%)
Digital camera	10(29.42%)	24(50.82%)
Digital sound recorders	8(23.52%)	26(76.48%)
E book reader	8(23.52%)	26(76.48%)
Smart board	8(23.52%)	26(76.48%)
Kiosk	1(2.94%)	33 (97.0%)
RFID technology	0(00.00%)	34(100.00%)

Software in libraries

All the respondent libraries were having library management software and antivirus software in their library. Few libraries were having Digital library software 10(29.42%) ,8(23.52%) was having Learning management software, 8(23.52%) was having Content management software. Only 4(11.76%) was having plagiarism detection software.

Table No.3: Software used by the library

Softwares used by the library(n=34)	Yes	No
Library management software	34(100.00%)	00(00.00%)
Antivirus software	34(100.00%)	00(00.00%)
Digital library software	10(29.42%)	24(50.82%)
Learning management software	8(23.52%)	26(76.48%)
Content management software	8(23.52%)	26(76.48%)
Plagiarism detection software	4(11.76%)	78(88.24%)

Internet access in the libraries

Campus LAN connected to internet

According to the data collected, all of the colleges have a LAN that is connected to the internet.

Internet connection speed

The internet's speed has a significant impact on the accessibility of web resources. Slow internet speeds make it difficult to access web content, so having enough internet speed is essential.

Majority of 22(60.7%) institutes were having internet speed in between 51 to 100 mbps. Only two institutes were having internet speed above 101 mbps

Table No4: Speed of Internet Connection in mbps.

Speed of internet	Below 50 mbps	51 to 100 mbps	Above 101 mbps	Total
N=34	10(29.41%)	22(60.7%)	2(5.88%)	34(100.0%)

Conclusion

The researcher of the present study analyzed hardware facilities, software used , internet connectivity and automation status of the libraries of management institutes and arrived at the conclusion that the ICT infrastructure in these libraries at different state of development and this should be strengthen with the support of government, college authority and librarians. They further concluded that solid policy for the ICT infrastructure should be made for availability of digital platform for the users.

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ANALYSIS OF FACTORS INFLUENCING ONLINE BUYING INTENTIONS TOWARDS APPARELS

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ABSTRACT

The Indian e-commerce industry is growing substantially and is projected to reach ninety-nine billion USD in 2024 which was only 30 billion in 2019. The apparel industry is gaining more importance in E-commerce, Payoneer report indicates the growth of e-commerce is projected to be doubled from 2020 to 2025 that is 4.0 percent to 8.0 percent for food & grocery, Apparel and consumer electronics. Fashion and apparel is a key driver of incremental growth in ecommerce. The study enunciates important factors influencing buying intentions while online shopping of apparels. The study includes mixed demography to study the behavioral attributes, functional attributes and aesthetical attributes influencing buying intentions towards apparel. The vital factors are extracted applying factorial analysis, further filtered and confirmed through confirmatory factorial analysis in Amos.

Keywords: *Buying Intentions, Purchasing Intentions, Fashion and Apparels, Online Shopping, behavioral attributes, functional attributes, aesthetical attributes.*

Introduction

The fashion and lifestyle industry is witnessing a huge rush globally, with the ample opportunities for growth and a host of other factors resulting in the progress of this industry. Despite of the slowdown in the economy and uncertainty worldwide due to the pandemic, e-Commerce is expecting a huge growth in coming years. Consumers buy apparel the most from online channels in respect to fashion categories, followed by footwear and accessories. The online retail pioneers Amazon, eBay and Wal-Mart have set a benchmark in e- commerce business. E-commerce has shown tremendous growth during the pandemic, and retailers like Lifestyle, Shoppers Stop, Myntra, Flipkart have put much effort in improving their online stores. The brands or the retailers which were not active online, due to pandemic they have also improved online presence a lot. The present study focuses on the analysis of purchasing intensions of apparels in online segment. The research was carried out using apparel shopping lifestyle survey template by Question Pro to understand the factors that affect fashion behavior amongst buyers. This survey includes questions to understand behavior of consumers and their perception while purchasing apparels questionnaire consists of how much preference customers give to fashion related clothes and what are the core buying intentions while buying apparels online. A set of behavioral attributes, functional and aesthetics attributes were clustered and studied with rigor analysis.

Literature Review

Madalena Periera, Rui Miguel (2009) in their research paper analyzed relationship between apparels attributes and advertising on consumer buying behavior. They analyzed whether advertising had an influence on people buying decision, they also tried to find out what are the attributes you look while going for shopping apparels.

(Syed Irfan Shafi, 2014) (Placeholder1) Deepali Saluja (2016) the study was conducted to analyze consumer buying behavior regarding fashion apparels in Delhi. The results showed that people prefer to shop with friends and family. Comfort, quality and brand are the attributes which have an impact on their buying decision.The results showed that age, occupation, education, gender had no influence on impact on their behavior decisions. It also showed that people of Delhi have positive attitude towards brands of apparels.

Y. Ramakrishna Prasad (2012) posit the drivers which influences the purchasing decision for buying apparels from the organized consumer market. The results showed that the attributes like referral groups, demand, diversity, value are the drivers which influences the buying decision of apparels from organized retail market.

Md. Mazedul Islam et al (2014) tries to find out what are the factors that influences consumer behavior towards buying local branded products, the attributes that the customer prefers are quality, value, aesthetics, price, and functional look. The results also showed few local brands which the consumers preferred.

(Vinith Kumar Nair) Dr. Pawan Kumar, Kanchan (2017) aims to study the consumer behavior while purchasing apparels in Ludhiana City. It also instructs to find out the psychological, demographic and socio-economic factors influence on buying apparels. The results show that people of Ludhiana are interested in buying branded products.

(Bello S. C., 2016) Namita Rajput et al (2012) aims to understand the consumer behavior in organized retail market. This paper also showcases the various attributes which act as the driving force of the dynamic organized market. The study also aims to understand the factors influencing consumer behavior and the importance of each in respect to their buying decision.

Padmakshi Sharma (2012) the study interprets the factors affecting the behavior of consumers in relation to branded apparels in Ahmedabad city. The various attributes related to consumers were explored in relation to their purchase behavior with reference to youth .

Raja Gopal (2011) the study examines the determinants and its impact on buying decision with reference to brand image, promotions, and external market knowledge. The results revealed that personality and socio-cultural attributes induces purchase intension among the consumers of Mexico. The results showed a positive impact of store and brand preferences on the purchase intension of the consumers.

Objectives of the Study

1. To classify the Factors Influencing Online Buying Intentions towards apparels
2. To refine the factors influencing online buying intensions towards apparels.

Methodology

The descriptive research design, a cross sectional study is carried out. The Sample of 78 respondents was collected using random sampling method. A survey consists of a set of 22 questions were used to study the functional attributes, behavioral attributes and aesthetics to analyze the purchase intensions of online shoppers of apparels. Data analysis was done through SPSS and AMOS. A KMO and Bartlett's Test is used to measure the adequacy of sampling and factor analysis and confirmatory factor analysis was carried out.

Data Analysis & Interpretations

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.666
Bartlett's Test of Sphericity	Approx. Chi-Square	661.185
	df	231
	Sig.	.000

The KMO measure of sampling adequacy is 66.6 percent while Bartlett's test shows significant value to obtain factorial analysis and reduce the insignificant dimensions of buying intentions towards apparels.

Rotated Component Matrix[a]

	Component						
	1	2	3	4	5	6	7
"Clothes are one of the most important ways I have of expressing my individuality"	**0.804**	0.076	0.102	0.120	-0.160	0.075	-0.110
"I prefer the tailored look in my clothing"	**0.796**	0.145	-0.303	0.056	0.305	-0.025	-0.042
"My clothing selections are made with an eye toward the future"	**0.792**	0.044	0.014	0.101	0.104	-0.157	0.248
"I spend a lot of time on fashion-related activities"	**0.671**	0.043	0.346	-0.124	-0.004	0.180	0.105
"I try to buy "basics" in clothing"	**0.595**	-0.007	-0.091	0.413	0.124	0.012	-0.126
"I find that my size dictates what style of clothing I can buy"	0.461	0.142	0.185	-0.090	0.210	0.180	-0.353
"I never read fashion magazines or pay attention to fashion trends"	-0.048	**0.757**	-0.021	0.295	-0.108	0.025	-0.081
"I always buy at least one outfit of the latest fashion"	0.436	**0.691**	-0.158	0.212	-0.117	-0.067	0.180
"The quality of the merchandise I buy is more important than its fashion appeal"	0.268	**0.655**	0.368	-0.198	0.067	-0.170	-0.101
"If you have a few good clothes you can get by in most situations"	-0.198	0.577	0.229	0.064	0.033	0.137	-0.417
"I spend a lot of money on clothes and accessories"	0.421	0.452	0.145	-0.080	-0.381	0.284	-0.159

"I prefer to buy designer labels rather than store-branded merchandise"	-0.041	0.082	**0.854**	0.062	0.029	0.032	0.052
"I usually get bored with clothes if I keep them too long"	0.005	0.051	**0.599**	0.552	0.039	-0.006	-0.267
"It's just not worth the money to be well dressed all the time"	0.480	0.105	0.544	0.157	-0.119	-0.017	-0.159
"My apparel selections are strongly influenced by clothing worn by people I admire"	0.077	0.192	0.146	**0.841**	0.109	-0.008	0.041
"I avoid high fashion clothing because it goes out of style too quickly"	0.535	0.035	0.029	**0.621**	-0.113	0.111	-0.094
"It is important for me to be a fashion leader"	0.088	-0.010	0.149	0.034	**0.863**	0.166	-0.002
"I'd spend my money on clothes before I'd spend it on most other things"	-0.038	0.120	0.182	-0.059	-0.618	0.238	0.262
"I am confident in my ability to recognize fashion trends"	-0.172	-0.058	-0.181	0.096	-0.073	**0.786**	0.159
"I like my clothes to be practical"	0.313	0.033	0.249	-0.006	0.036	**0.677**	-0.215
"It's important to be well-dressed"	0.195	0.404	0.087	-0.150	0.275	0.415	0.298
"I am aware of fashion trends and want to be one of the first to try them"	-0.036	-0.083	-0.023	-0.074	-0.104	0.073	**0.794**
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.							
a. Rotation converged in 10 iterations							

A factorial analysis- principal component matrix with Varimax rotation method and Kaiser Normalization was used to reduce the insignificant dimensions on purchasing intentions. The rotations converged in ten iterations and extracted seven components with several important factors with higher loadings of Eigen values. The Eigen values are organized in Descending values on seven components.

The statements used are not purposely to exaggerate or understate the respondents, Further the important variables with higher Eigen values are grouped under the appropriate headings.

Behavioral Attributes

"Clothes are one of the most important ways I have of expressing my individuality"
"I prefer the tailored look in my clothing"
"My clothing selections are made with an eye toward the future"
"My apparel selections are strongly influenced by clothing worn by people I admire"
"I usually get bored with clothes if I keep them too long"
"I never read fashion magazines or pay attention to fashion trends"

Functional Attributes

"I try to buy "basics" in clothing"
"The quality of the merchandise I buy is more important than its fashion appeal"
"I like my clothes to be practical"

Aesthetic (Fashion) Attributes

"I always buy at least one outfit of the latest fashion"
"I prefer to buy designer labels rather than store-branded merchandise"
"I spend a lot of time on fashion-related activities"
"I avoid high fashion clothing because it goes out of style too quickly"
"It is important for me to be a fashion leader"
"I am confident in my ability to recognize fashion trends"
"I am aware of fashion trends and want to be one of the first to try them"

The purchasing intentions were categorized in three groups such as, Behavioral attributes, Functional attributes, and Aesthetic attributes. The behavioral aspect explains the perception and responding nature of the people towards apparel buying intentions. Since the sample consists of mixed population like Students, Housewives (dependents) and working-class category in high to middle income groups, the results clarify general perception. It is very clear that people consider clothing as a priority to demonstrate their personality. To exhibit their uniqueness, it's obvious that the apparel selection is influenced with the people they admire. However, comfort is a basic concern

A functional attribute describes practicality, sensibleness in online buying intentions of apparel. Most of the people try buying basics in clothing for day today use. It doesn't mean that occasional dressings are less preferred. The basics in apparel especially for women is a complex situation, however we can consider five basics in women clothing e.g., Sarees, Kurtis, Anarkalis, leggings/jeggins and tops while in men's clothing it can be casual shirts, T – shirts, Jeans and shorts. The frequent buying intentions are basic clothing this can be due to cyclic utilization and hence the quality is overtopped than a fashion appeal.

The Aesthetic attribute in clothing describes artistic, fashion, lucrative visuals. People are fond of looks and are basically attracted towards fashion. People are aware of fashion trends and want to one of the first to try them, they are confident in their abilities to recognizing fashion trends. Respondents explicate that they spend lot of time in fashion related activities while they buy at least one outfit of latest fashion, mostly prefer to buy designers' label rather than store- branded merchandise. The youngsters are quite inclined towards being a fashion leader.

wherein people think of customized (tailored) fittings. For example, the brands like Raymond and Bombay shirts are exclusively working on customized fittings. A common man use the apparel purchased for six months to 12 months on an average, not specifically, however its unlike celebrity wear apparels once or twice and make them obsolete. It's also important to note that people are influenced strongly in selection of clothing worn by the person they admire.

On the backdrop of the factors extracted and categorized on Behavioral attributes, Functional attributes and Aesthetics, the complexities in the factors are leading to discriminations in their directions. For example

Attrib- "My clothing selections are made with an eye towards the future" is conflicting with

Attrib- "I usually get bored with clothes if I keep them too long",

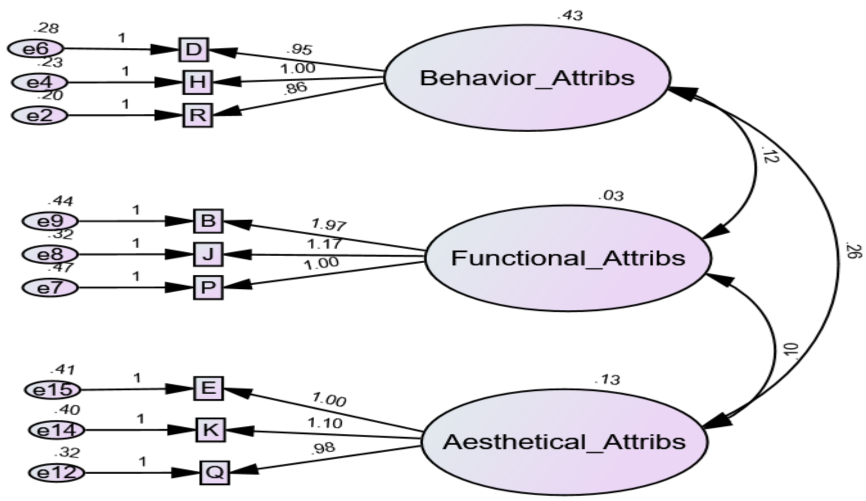
Attrib- "I never read fashion magazines or pay attention to fashion trends" is conflicting with almost all Aesthetical attributes and strongly to

Attrib- "I spend lot of time on fashion related activities"

Attrib- "I am aware of fashion trends and want to be one of the first to try them"

Attrib- "I avoid high fashion clothing because it goes out of style too quickly"

This may require validating and confirming the distinctive attribute variables, a confirmatory factorial analysis is carried out in AMOS and a model fit indices were verified.



Result (Default model)

Minimum was achieved

Chi-square = 35.905

Degrees of freedom = 24

Probability level = .056

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	21	35.905	24	.056	1.496
Saturated model	45	.000	0		
Independence model	9	237.609	36	.000	6.600

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.035	.912	.836	.487
Saturated model	.000	1.000		
Independence model	.186	.476	.345	.381

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.849	.773	.944	.911	.941
Saturated model	1.000		1.000		1.000

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.667	.566	.627
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	11.905	.000	32.088
Saturated model	.000	.000	.000
Independence model	201.609	156.553	254.163

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.466	.155	.000	.417
Saturated model	.000	.000	.000	.000
Independence model	3.086	2.618	2.033	3.301

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.080	.000	.132	.179
Independence model	.270	.238	.303	.000

CFA Model Interpretations

The CMIN/DF value is 1.496 is in the range of 1.0 to 3.0 indicates a good model fit.

Comparative fit index (CFI) value is 0.941 which is greater than 0.90 and close to 1.0 is remarkable good fit.

GFI 0.912 is very close to 0.95 can be interpreted as a good indicator.

TLI 0.911 is less than one and very close to 1.0 specifies a very good fit

The Parsimony – adjusted Comparative Fit Index (PCFI) value 0.627 is moderately fit as it is in between 0 to 1.0.

The Root Mean Square Residual (RMSEA) Value is exactly 0.80 represents a good fit.

The Root Mean Square Residual (RMR) is 0.35 less than 0.05 indicates a strong fit.

It has been observed that the Confirmatory model is fit and the extracted variables are appropriate. Out of twenty-two factors sixteen factors extracted in exploratory factorial analysis while only nine factors were mined in confirmatory factorial analysis. The behavioral attributes, functional attributes and aesthetical attributes classified and extracted three factors in each group.

Behavioral Attributes

1. “I prefer the tailored look in my clothing”
2. “Clothes are one of the most important ways I have of expressing my individuality”
3. “My clothing selections are made with an eye towards the future”

In Indian context people still prioritize a tailor-made looks, the reputed companies consider these choices and provide more options in sizes like slim fit, comfort fit, contemporary fit in shirting and women tops while high waist, low waist, lycra in trousers. The clothing shopping in all the income groups are keen in preserving the clothes for future use of two to three years and hence it is important that “My clothing selections are made with an eye towards the future”. It is quite obvious and general in all the age groups, income groups and gender that “clothes are one of the most important ways I have of expressing my individuality”.

Functional Attributes

1. “I try to buy “basics” in clothing”
2. “The quality of the merchandise I buy is more important than its fashion appeal”
3. “I like my clothes to be practical”

There is no change in functional attributes extracted in exploratory factorial analysis and confirmatory analysis. The functional attributes are focused on quality of merchandise, clothes preferred are practical and not like in a fashion show while basic clothing is most preferred.

Aesthetical Attributes

1. “I always buy at least one outfit of the latest fashion”
2. “I spend a lot of time on fashion-related activities”
3. “I avoid high fashion clothing because it goes out of style too quickly”

Folks are quite inclined towards the aesthetical aspects. In all age groups and income groups at least one outfit of latest fashion trend is favored. People spend lot of time on fashion related activities, this can be mostly on screen like while watching TV, OTT platforms and digital boards/kiosks. However, the fashion clothing is avoided because it goes out too quickly also the practical clothes are mostly preferred as a functional attribute, these two are strongly correlated

Conclusion

Apparels shopping online has been increased from the last decade, earlier the buying intentions were wedged on the periphery of the core purchasing like reliability in online shopping, website performance, returns and replacements, billing and discounts etc. today online shopping has become almost regular and easier than shopping in malls. The core buying intentions are studied and categorized in behavioral attributes, functional attributes and aesthetical attributes. A dimension reduction tool, factorial analysis was carried out wherein sixteen factors were extracted. Further to confirm and filter conflicting factors a confirmatory factorial analysis was performed and only nine factors were extracted with a good model fit and categorized and elaborated.

The Indian folks in all demographics are keen in clothing, apparel fitting and use clothes for long time, minimum for one year. The basics and practical approach with quality in clothing is most preferred. There is inclination towards fashion, fashion related activities and so likely to use at least one from latest fashion.

However high fashion clothing is avoided since it may go out of style quickly.

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A REVIEW ON MOLECULAR ORBITAL OF DIATOMIC MOLECULES

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ABSTRACT

Sub-atomic Orbital Theory (MO) is an amazing and broad methodology that depicts electrons as delocalized parts on nearby iotas. These prior hypotheses give generous data on anticipating the construction and restricting properties of an atom by depicting electrons as confined "inflatables" at high thickness. Typically, in diatomic sub-atomic orbitals, nuclear orbitals with the nearest energy level can cover and frame sub-atomic orbitals. Accordingly, nuclear orbitals for the most part will in general cover individually, from the least possible energy to the likely energy of the greatest homonuclear diatomic particle, which implies that the two iotas are a similar component, the equivalent orbitals will cover and shape sub-atomic orbitals. Similar as nuclear orbitals, atomic orbitals (MO) are utilized to portray the t bond in particles by applying bunch hypothesis. The essential thought of what sub-atomic orbitals are can be the coordinated mixes of nuclear orbitals relying upon the balance of the particles and the qualities of the iotas. By applying the MO chart, properties, for example, attraction and chirality of atoms can be anticipated. Similarly, as nuclear orbitals can be addressed as wave works by applying the Hermitian administrator to Schrödinger's situations, sub-atomic orbitals can be approximated by straight blends of nuclear orbitals.

***Keywords**: Orbital Theory, atom, inflatables, Molecules.*

1. Introduction

Despite the truth that VSEPR and the Valence bond speculation as it should be count on bond homes, they forget about to absolutely elucidate a few atoms. The MO speculation combines the wave nature of the electrons withinside the MO graph. MO graphs count on the bodily and substance homes of a particulate form, the binding energy, the bond length, and the bond point. They additionally offer statistics to expect the digital spectra and paramagnetism of a particle. then be extrapolated to assemble greater tricky polyatomic boundaries. Subatomic orbitals Area wherein an electron is in all likelihood to be determined in a particle. An MO is characterised because the aggregate of nuclear orbitals.

Homonuclear diatom Particles comprising indistinguishable iota are assumed to be homonuclear diatomic, for instance H2, N2, O2 and F2. LiF. Holding and Antibonding Orbitals Orbitals which are out of scene with every different are "antibonding" orbitals in mild of the truth that regions with thick electron chances do now no longer consolidate, accordingly weakening the particle. . nuclear orbitals and are in phase, as proven withinside the determine below. Note how preservation orbitals meet in a beneficial way, not like anti-binder orbitals as shown in fig 1.

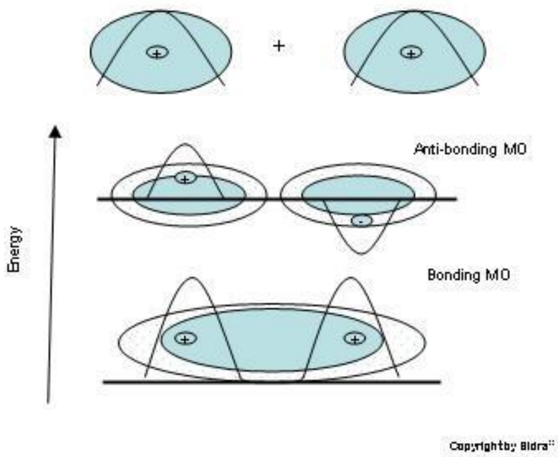

Figure 1- bonding MO and Anti bonding MO

2. Literature Review

Stages and hubs Stages are assigned either (+) or (-) comparative with their wave "up" or wave "down" removals. A hub occurs if the degree symptoms and symptoms alternate from (+) to (-) or the alternative manner around. Notice that the degree symptoms and symptoms do not constitute charges. Hubs are locales wherein the probability of coming across an electron is ZERO.

Sigma and Pi Bonding

A sigmabond is a "start-to-end" bond fashioned with the aid of using symmetrical nuclear orbitals. A pibond includes a "lateral" crossover. ability or Gibbs strength) of orbitals. Individual nuclear orbitals (AOs) are designed to the a long way left and a long way proper of the limit. Overlapping nuclear orbitals produce atomic orbitals positioned withinside the graph. These MOs pass with a sigma or pi bond and are assigned to hold, unbind, or anti-bind orbitals with recognize to their stages. Electrons in nuclear orbitals are assigned atomic orbitals in step with the Pauli exclusion principle. Low strength MOs are stuffed first, observed with the aid of using sequentially increasing orbitals.

Steps In Deriving Mo Diagrams

There are some degrees ordinary in all MO graphs. Understanding those essential degrees to deduce honest homonuclear and heteronuclear MOs will empower us to construct extra muddled, polyatomic graphs. Stage 1 Discover the valence electron setup of each particle withinside the atom. The valence electrons may be set at the nuclear orbital for that iota. Do this for each iota. Ex) Boron (B) = (He)2s2 2p1 = three valence electrons Stage 2 Choose if the particle is homonuclear of heteronuclear.

On the off risk that the particle is homonuclear, the AOs may be symmetric. Heteronuclear AOs may be incredibly particular in mild of the truth that the extra electronegative particle may be positioned decrease at the define. This is due to solitary units of electrons being extra regular on extra electronegative additives using them to be decrease in power. Ex) HF = "F" may be set decrease withinside the graph than "H". Stage three Fill sub-atomic orbitals making use of power and protecting houses of the overlaying nuclear orbitals. Remember the power of the nuclear orbitals and sub-atomic orbitals!

The accompanying factors upload to the state of affairs of 1 MO as for unique MOs. • More hubs = extra vivacious = better MOs • Sigma orbitals are extra grounded than pi bonds • Antibonding MOs are better in power than protecting MOs • Constructive cross-over = much less hubs = extra regular (much less vivacious) • Destructive cross-over = extra hubs = much less regular (extra vivacious) Stage 4 Utilize the graph to foresee houses of the atom, Bond request, bond point, paramagnetism, and so forth (Keep in mind: the amount of man or woman nuclear orbitals must upward push to the amount of MOs) Building Molecular Orbital. Diagrams for Homonuclear and Heteronuclear Diatomic Molecules Because of stability of the

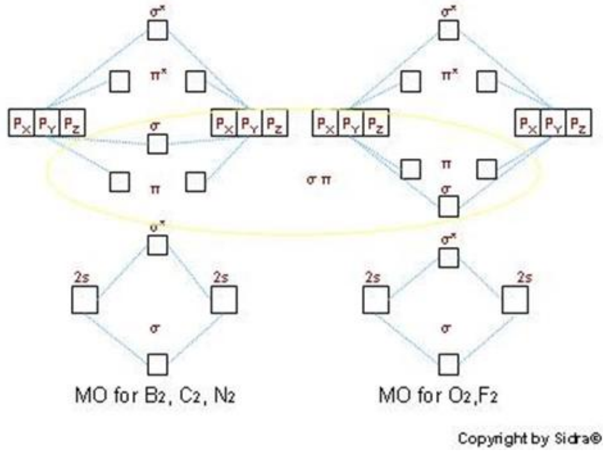

Figure 2- Homonuclear and Heteronuclear Diatomic Molecules

particle, homonuclear MO's are much less tough to deduce than heteronuclear atoms and polyatomic atoms. (Like H2O, NH3, and CH4.) However, be aware the difference among orbitals of homonuclear diatomic for additives with a nuclear quantity now no longer precisely or equal to 7 (up to fourteen electrons framework, for this case in reality don't forget the power stage request resembles ∏, σ, ∏* and σ*) as opposed to extra than 7 (in extra of 14 electrons framework, for this case in reality bear in mind the power stage request resembles σ, ∏, ∏* and σ*). As a trendy rule, B2, C2, and N2 have the MO define portrayed at the left. O2 and F2 have the MO at the right in fig 2. For what cause does this difference exist.

3. Construction of MO diagrams

for heteronuclear molecules calls for the equal four steps as above. However, take into account that the greater electronegative atom may be decrease at the diagram. Valence rule Bond Heitler and London gave this hypothesis. This is generally fundamentally based absolutely at the considerations of atomic orbitals, format of computerized parts, protection of atomic orbitals, hybridization of atomic orbitals. The protection of atomic orbitals decides the

relationship of a compound bond. Electrons are confined withinside the job of the bond in light of the cover. The valence bond theory portrays the computerized production of iotas.
The theory says that electrons fill atomic orbitals one bit inside a particle. Likewise, it communicates that the core of one molecule is intrigued by electrons from each unique atom. Presently, we should save and inspect the magnificent recommendations of the valence security theory. Valence Bond Theory Assumptions • The inclusion of half-filled valence orbitals with single particles decides the advancement of the covalent bond. The covering will development the thickness of the electron among strengthened atoms in fig 3.

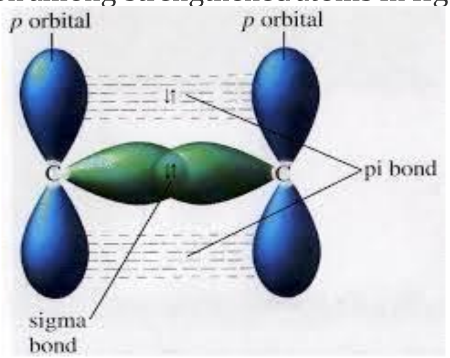

Figure 3- valence bond

Constraints of the valence bond thought As we noted before, presently done something is ideal! Similarly, the valence bond thought isn't best by the same token. It has its cutoff points. They are: • It neglects to offer a reason for the tetravalence of carbon. • This thought talks the energies of electrons. • The theories identify with the space of electrons in explicit positions. In view of the superposition of the orbitals, sorts of covalent bonds are normal, called sigma (σ) and pi (π) bonds.• Sigma bonds are normal by means of the thwart to-prevent superposition of nuclear orbitals along the internuclear hub known as front facing or pivotal superposition. Endon cross-over is of three sorts, it's miles ss cross-over, sp cross-over and pp cross-over in fig 4.

• A pi bond is normal even as nuclear orbitals explicitly cross-over so their tomahawks stay corresponding to each particular and opposite to the internuclear pivot. Sigma (σ) and Pi (π) Bonds in figure 5. There are 2 assortments of covering orbitals: sigma (σ) and pi (π). The two bonds are molded from the cross-over of two orbitals, one on each molecule. σ bonds happen while orbitals cross-over in among the cores of molecules, similarly called the internuclear hub. π bonds take region while 2 (unhybridized) p-orbitals cross-over. The p-orbitals, in a solitary π bond, lie above and under the cores of the iotas. By possessing the spot of region this is above, ordered under, and on the edges of an iota's cores, π bonds can shape.

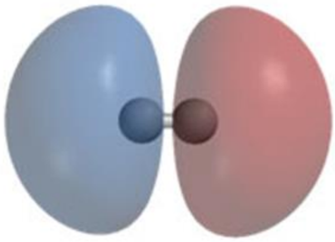

Figure 4 (a) Sigma bond

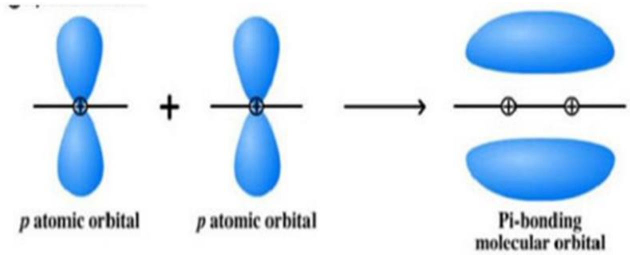

Figure 4 (b) Pi bonding molecular orbital

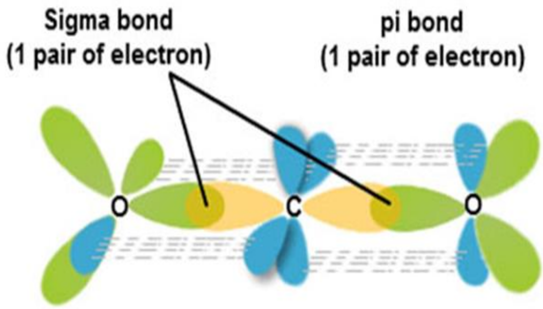

Figure 5- Sigma pi bond

Proposals of valence bond theory

The fundamental propositions of the valence security hypothesis are as follows: • Covalent bonds are formed when 2 valence orbitals (half-filled) from two distinct iota intersect with each other. 'Other.

The thickness of the electron in the area between the two holding iota increases due to this coating, thus increasing the reliability of the next atom. Various bonds with different molecules.

The paired electrons present in the valence layer do not participate in the development of the bonding substance under the valence bond hypothesis. • The sigma and pi bonds contrast in the example where the cross-linked nuclear orbitals in, for example, the pi bonds are formed by the lateral sheath while the sheath along the hub containing the nuclei of the two molecules advances the sigma bonds.

The uses of the VBT valence bond hypothesis can regularly clarify how covalent bonds are structured.

The diatomic fluorine particle, F2, is a model. The fluorine iotas structure the individual covalent bonds between them. The FF bond emerges from the cover pc orbitals, each of which includes an unpaired solitary electron. A comparative circumstance occurs in hydrogen, H2, however bond lengths and strengths differ somewhere in the range of H2 and F2 particles. A covalent bond forms in the middle of hydrogen and fluorine in the corrosive hydrofluoric HF in fig 6.

This bond is formed by the cross between the hydrogen orbital and the fluorine 2 pcs orbital, each of which has an unpaired electron. In HF, hydrogen and fluorine share these electrons in a covalent bond.

VBT Constraints Flaws in the valence bond hypothesis include: • The inability to represent the tetravalence displayed by carbon.• No knowledge given on electron energies. • The hypothesis assumes that the electrons are delimited in explicit zones. • Does not provide a quantitative translation of the thermodynamic or motor qualities of coordination substances.

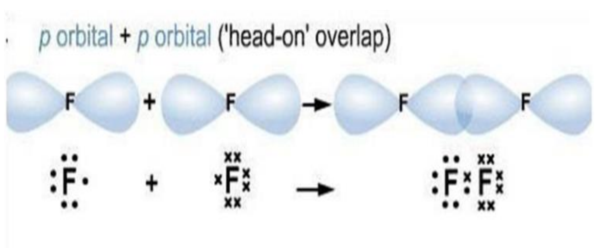

Figure 6- head on overlap bonding

Table 1- distribution of hybrid orbitals

Coordination number	Type of hybridisation	Distribution of hybrid orbitals in space
4	sp^3	Tetrahedral
4	dsp^2	Square planar
5	sp^3d	Trigonal bipyramidal
6	sp^3d^2	Octahedral
6	d^2sp^3	Octahedral

A non-holding orbital (NBMO) is a sub-atomic orbital for which the expansion or expulsion of an electron doesn't change the energy of the particle.

Sub-atomic orbitals come from the straight mix of nuclear orbitals.

In a basic diatomic atom, for example, HF, F has a greater number of electrons than H.

The s orbital of H can cover with the 2pz orbital of fluorine to shape a holding σ and an antibonding σ* orbital.

The px and py orbitals from the F don't have some other orbitals to join with. They become NBMOs.

The px and pz nuclear orbitals have become sub-atomic orbitals. They look like px and py orbitals however they are currently atomic orbitals.

The energies of these orbitals are something similar in the particle as they are in a disengaged F iota. Hence, placing an electron into them doesn't change the solidness of the particle.

NBMOs don't have to look like nuclear orbitals. For instance, the NBMO of the ozone particle has its electron thickness focused on the end oxygen molecules. There is no electron thickness on the focal molecule in fig 7.

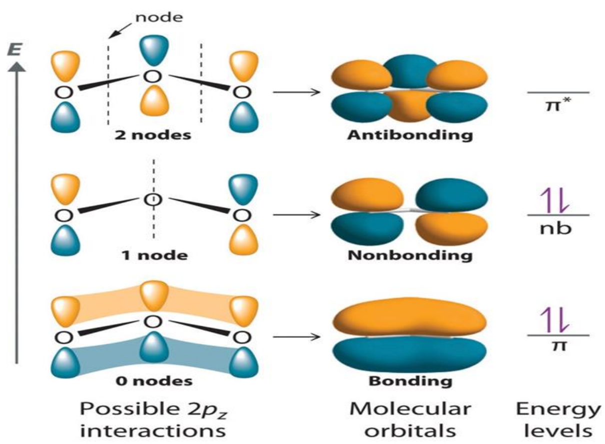

Figure 7- Molecular orbitals

4. Rules for the LCAO technique are:

1)The same energy of joining orbitals: The consolidating nuclear orbitals should be of equivalent energy or around same energy

2) Same evenness along the nuclear orbital:The joining iotas ought to have a similar balance along the atomic pivot for legitimate mix

3) Proper cross-over between the nuclear orbitals:The two nuclear orbitals will combione to shape sub-atomic orbital. More noteworthy is the reach out of cross-over of nuclear orbital, more prominent will be the atomic thickness.

5. Result

We are accepting right here that the understudies recognize the princi-ples of factor bunch evenness and capacity to differentiate the essential stability additives for an atom: head flip hub and different pivot tomahawks, planes of stability, consciousness of stability (or reversal consciousness), revolution mirrored image tomahawks and individual. Moreover, we assu-me that understudies understand a way to symbolize a particle as in step with its unique factor bunch and understand that very last portrayals deal with the balances of specific sub-atomic properties, for our situation, the valence orbitals.

It is moreover time-honored that the essential requirements of sub-atomic orbital (MO) speculation for diatomic atoms which understudies have visible in earlier than publications are perceived along the manner that sub-atomic orbitals are direct mixes of nuclear orbitals. These directly blends appear whilst the balances of the nuclear orbitals are some thing comparable and the orbitals are near in electricity. At last, the understudies are taken to absolutely recognize the contrasts among holding, antibonding and nobonding atomic orbitals. Four delegate polyatomic debris may be taken into consideration on this paper, to be unique: H2O H2O The factor collecting of H2O is C2v.

The balances of the valence orbitals of the focal O molecule can directly be gotten from the C2v individual table. The balances of s orbitals are continuously given with the aid of using the truely symmetric unchangeable portrayals in individual tables, even as balances of p orbitals are gotten from the 0.33 section of the individual tables wherein the x, y and z Cartesian facilitate tomahawks are demonstrated. The d orbitals may be outstanding from the fourth section of the individual tables because the double outcomes of the Cartesian coor-dinates (z2, xy, and so on) To accumulate the balances of the LGOs of H2O, we want to understand that the C2 rule pivot hub is ready the z-hub containing the O particle.

To tune down the reducible portrayals for the LGOs, the accompanying splendid collecting hypothetical lower equation is utilized: wherein laptop primarily based totally intelligence is the events the I-th very last portrayal indicates up withinside the reducible portrayal, h is the request for the collecting, R addresses the evenness activity, g is the request for the class, Xi(R) is the very last portrayal individual in R and Xt(R) is the reducible portrayal or all out portrayal individual in R. The orbitals a good way to consolidate at once ought to have a comparable evenness and be near in electricity. The real electricity degrees for man or woman debris are directly gotten from check estimations, for example, with the aid of using photoelectron spectroscopy.

6. Conclusion

To deliver our gathering hypothetical strategy for creating MO energy outlines simpler for college understudies to follow, we have developed the accompanying stepwise broad methodology:

- Stage 1. Recognize the point bunch evenness of the particle
- Stage 2. Decide the balances of the valence orbitals of the focal molecule from the person table
- Stage 3. Discover the balances of the LGOs
- Stage 4. Build the MO energy level chart.

This calculation is altogether reliable with Taber's notable academic way to deal with substance education.

Acknowledgements

We would like to express our sincere thanks to Dr. Chandrashekhar V. Murumkar, Principal, Tuljaram Chaturchand college Baramati, for his constant encouragement and support. We also thank Mr. Chetan Thakar for his constant support.

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