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Editorial.....

You will be happy to know that we have entered the fourth year of publication of IJMER, since its inception in April 2012. Focusing on many interdisciplinary subjects, the published papers are spreading the knowledge with fervent hope of upholding the holistic approach. With all my heart, I reiterate to echo my sincere feelings and express my profound thanks to each and every valued contributor. This journal continues to nurture and enhance the capabilities of one and all associated with it.

We as a team with relentless efforts are committed to inspire the readers and achieve further progress. Aim is to sustain the tempo and improve. We acknowledge with pleasure that our readers are enjoying the publications of Sucharita Publishers. We solicit to receive ideas and comments for future improvements in its content and quality. Editor – in-Chief explicitly conveys his gratitude to all the Editorial Board members. Your support is our motivation. Best wishes to everyone.

Dr.K.Victor Babu
Editor-in-Chief

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& TECHNOLOGY, MEDICINE, SCIENCES, ART & DEVELOPMENT STUDIES, LAW**

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COMPARATIVE STUDY OF SOLVENCY POSITION (BANKRUPTCY ANALYSIS) OF CO-OPERATIVE BANKS OF JALNA, PARBHANI, PUNE AND MUMBAI CITIES, MAHARASHTRA, INDIA BY USING Z-SCORE ANALYSIS

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Introduction:

Z- Score Model combines four different ratios: X1, X2, X3 and X4 to determine the likelihood of Bankruptcy amongst Banks. The Z-Score analysis deals with the analysis of Bank statements to extract significant information relating to Bank objectives, profitability, efficiency and degree of risk.

This is achieved by using ratios relating to key variables and analysis of the statements and the notes relating them. Since, ratio analysis employs data taken from the Bank's balance sheet, statement of retained earnings, and income statement, these reports and their inter-relations are to be prepared in such a way to enable the user to fully understand the significance of it.

The present study is focused on Comparison of Z-score between Co-operative Banks of Jalna, Parbhani, Pune and Mumbai Cities in Maharashtra, India. It also tries to show the "Efficacy of Altman's Z - Score Model" to predict Bankruptcy of sample Co-op. Banks for the accounting years 2010-11 to 2013-14.

What is Z-Score analysis?

The Z score provides a quantitative measurement to understand Bank's financial health. It highlights the factors contributing to Bank's



financial health and uncovers emerging trends that indicate improvements or deterioration in financial condition. It helps managers to align business strategies with capital allocation decisions and provide transparency of financial condition to lenders and equity capital providers. It is an effective tool to demonstrate credit worthiness of Bankers and soundness of business model to investors.

Z-Score Formula:

The Altman Z-Score actually consists of four performance ratios that are combined into a single score. These FOUR ratios are weighted using the following formula:

$$\text{Z-Score} = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4$$

Where,

X1 = Working capital ÷ Total assets

X2 = Retained earnings ÷ Total assets

X3 = EBIT ÷ Total assets

X4 = Market value of equity ÷ Total liabilities

Altman came up with the following rules for interpreting a Bank's Z-Score:

- Below 1.8 indicates a firm is headed for Bankruptcy;
- Between 1.8 and 3.0 is a statistical "gray area." and
- Above 3.0 indicates a firm is unlikely to enter Bankruptcy.

During his research Altman found that the ratio profile for Bankrupt group tell at 0.25 avg. and the non-Bankrupt group at +4.48 avg. Z-Score was found to be 80%-90% accurate in predicting Bankruptcy. Lower and negative Altman's Z-Scores mean that a bank is more likely to go Bankrupt, whereas higher and positive Z-Scores mean that a bank will survive for longer period of time.



Review of Literature:

- A) Kyriazopoulos Georgios (2012)** has observed that Z-score model used by Altman indicators had sensitivity as the information of the time course of the business in a depth of 10 years. Regarding the Cooperative Banks he had noticed that some co-operative Banks faced liquidity problems and thus resorted to seeking funds so that other Banks lend them money at very high interest rates.
- B) Roil Pradhan (2011)** has observed that the Bankruptcy prediction is of immense importance to the current business scenario both for the lenders as well as for the investors. There are many techniques that have evolved to assess the terms of credit from the static ancient times to the dynamic credit terms of today. The basic concerns of these models were to evaluate the terms of credit and ensure repayment for the safety of lending. In this move Z-Score has been a benchmark but has not been much used in the Indian scenario. Firstly, he uses Z-Score to predict the Bankruptcy of Banks in the lending arena when they actually go in for borrowing credit. In the second stand he attempts to draw a comparison of the three Banks being Axis Bank, HDFC Bank and ICICI Bank. He uses back propagation neural networks to predict the internal parameters of Z-Score for the firms. Author pointed out that from traditional times the Z score values have been constantly used for prediction of Bankruptcy. This has been vital to both the lenders and investors whose returns are based on solvency estimates. According to author, the terms of credit have gone a U turn from the traditional times to the modern scenario today. The basic concern of prediction is to evaluate the terms of credit and ensure repayment safely. Z score has been used as a tool to evaluate the credibility of the firms. In the present paper he



made a sincere attempt to provide the Z score value for the public sector Banks also. According to him this value is useful when these Banks demand loans from the RBI or any other funding agency. The usage of back propagation neural network is to forecast the internal parameters of Z score and then use these internal parameters to forecast the Z score value up to 2020.

C) Lidia Mandru, Adnan Khashman, Claudia Carstea, Nicoleta David and Lucian Atrascu (2010) suggested that the current economic crisis has made the business environment to be qualified as difficult or even critical, Bankruptcy risk becoming a permanent reality for many companies. Discriminant analysis can be used to assay companies and particularly to evaluate their Bankruptcy risk. Score functions are based on discriminant analysis and they are formed of a linear combination with a limited number of financial ratios; they are used in financial analysis but not only to identify the companies' present situation but also to assay their future. This paper used score functions to determine the Bankruptcy probability for private companies.

D) Reint Gropp, Christian Gruendl and Andre Guettler (2010) suggested that the Banks whose government guarantee was removed reduced credit risk by cutting off the riskiest borrowers from credit. At the same time, the Banks also increased interest rates on their remaining borrowers. The effects were economically large: the Z-Score of average borrowers increased by 7.5% and the average loan size declined by 17.2%. Remaining borrowers paid 46 basis points higher interest rates, despite their higher quality. Using a difference-in-differences approach he show that the effect is larger for Banks that ex ante benefited more from the guarantee and that



none of these effects are present in a control group of German Banks to whom the guarantee was not applicable. Furthermore, savings Banks adjusted their liabilities away from risk-sensitive debt instruments after the removal of the guarantee, while he do not observe this for the control group. The results suggest that public guarantees may be associated with substantial moral hazard effects.

Research Objectives:

1. To calculate the Z-Score of The Sunderlal Sawji Urban Co-Operative Bank Ltd., Parbhani, The Jalna Peoples Co-op. Bank, Jalna, The Cosmos Co-op. Bank Ltd., Pune and The Saraswat Co-op. Bank Ltd., Mumbai for the years 2010-11 to 2013-14.
2. To make a comparative analysis of the Z-Scores and predict probability of Bankruptcy for above mentioned Co-operative Banks.

Research Methodology:

The present paper is based on Secondary Data, collected from Financial Statements of co-operative Banks.

Sample Size: 4 Co-operative Banks located in Maharashtra, India

Scope of Research:

The present research is restricted to analyze the Z-Score of The Sunderlal Sawji Urban Co-Operative Bank Ltd., Parbhani; The Jalna Peoples Co-op. Bank, Jalna, The Cosmos Co-op. Bank Ltd., Pune; The Saraswat Co-op. Bank Ltd., Mumbai for the years 2010-11 to 2013-14 i.e. for Four years.

Following data shows the calculation of Z-Score of Four Sample Banks:

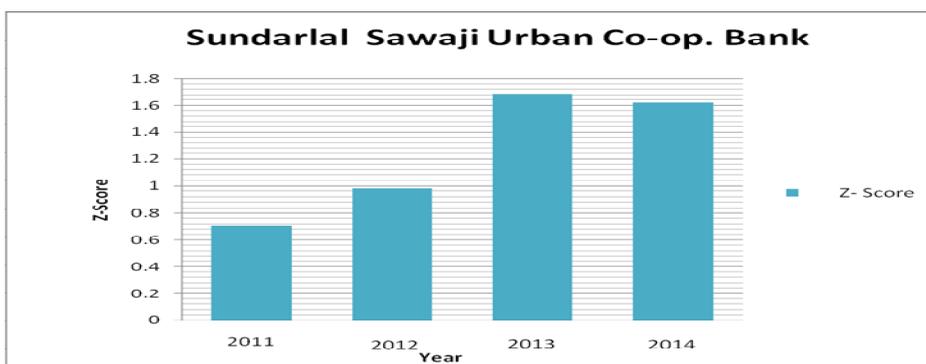
[1] Sunderlal Sawji Urban Co-Operative Bank Ltd., Parbhani:



Table No. 1: Z-Score Analysis of last 4 Years

	2010-11	2011-12	2012-13	2013-14
X1 = (Working Capital/Total Assets)	0.006832127	0.023149267	0.107468265	0.999714486
X2 = (Retained Earnings/Total Assets)	0.083897413	0.092509622	0.082075637	0.085928055
X3 = (EBITDA/Total Assets)	0.095159697	0.100281138	0.106002919	0.126778958
X4 = (Market Value Equity/Total Liabilities)	0.03743368	0.12966613	0.030821047	0.11859543
Z = 1.2*X1 + 1.4*X2 + 3.3*X3 + 0.6*X4	0.709203556	1.382815569	1.689286127	1.620522712

Graph No.1: Z-Score of The Sunderlal Sawji Urban Co-Operative Bank Ltd., Parbhani



Interpretation: Graph and Table No. 1 have shown that except in the year 2013-14 the Z-Score of The Sunderlal Sawji Urban Co-Operative Bank Ltd., Parbhani was increasing. Table no.1 has also revealed that X1 ratio of this Bank has been increased in the year 2013-14 this means that the proportion of working capital to total assets of this Bank has been increased.

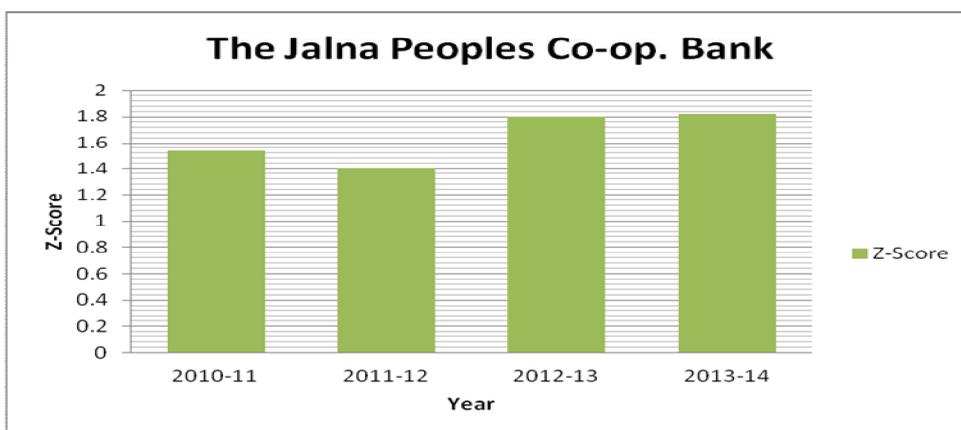
[2] The Jalna Peoples Co-Operative Bank Ltd., Jalna:



Table 2: Z-Score Analysis of last 4 Years

	2010-11	2011-12	2012-13	2013-14
X1 = (Working Capital/Total Assets)	0.464236 264	0.426314 678	0.089230 73	0.513640 217
X2 = (Retained Earnings/Total Assets)	0.114817 71	0.134627 855	0.130659 911	0.126427 192
X3 = (EBITDA/Total Assets)	0.062992 417	0.070011 912	0.083769 476	0.085392 988
X4 = (Market Value Equity/Total Liabilities)	0.026344 598	0.459196 458	0.051589 965	0.050096 523
Z = 1.2*X1 + 1.4*X2 + 3.3*X3 + 0.6*X4	1.541531 587	1.406613 772	1.799739 388	1.825223 359

Graph No.2: The Jalna Peoples Co-Operative Bank Ltd., Jalna



Interpretation: The Graph and Table No.2 have revealed that except in the year 2011-12, The Jalna Peoples Co-op. Bank Ltd., Jalna has achieved continuous improvement in Z Score Analysis. Table-2 has revealed that the X2 ratio that is proportion of retained earnings to total assets has been increased during this year. Further it has been also observed that X4 ratio that is the proportion of market value of equity over total liabilities also has increased during the same year.

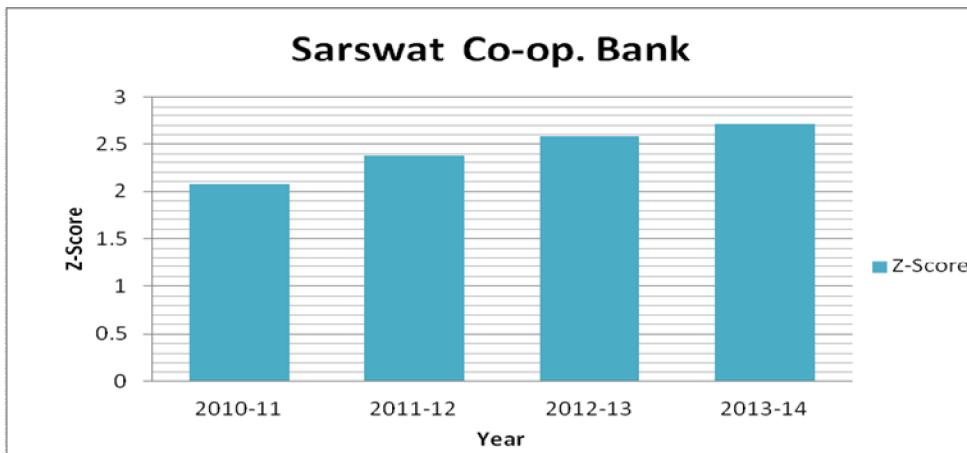


[3] The Saraswat Co-operative Bank Ltd., Mumbai:

Table 3: Z-Score Analysis of last 4 Years

	2010-11	2011-12	2012-13	2013-14
X1 = (Working Capital/Total Assets)	0.076685 656	0.511380 263	0.628399 93	0.617872 583
X2 = (Retained Earnings/Total Assets)	0.187943 003	0.126123 56	0.133354 785	0.145896 744
X3 = (EBITDA/Total Assets)	0.799458 269	0.960589 913	0.918552 486	0.853840 688
X4 = (Market Value Equity/Total Liabilities)	0.048620 283	0.047330 853	0.046649 542	0.054095 363
Z = 1.2*X1 + 1.4*X2 + 3.3*X3 + 0.6*X4	2.073652 346	2.386256 457	2.580171 258	2.711246 802

Graph No.3: The Saraswat Co-Operative Bank Ltd., Mumbai



Interpretation: The Graph and Table No.3 have revealed that The Saraswat Co-Operative Bank Ltd. has achieved continuous improvement in Z Score Analysis.



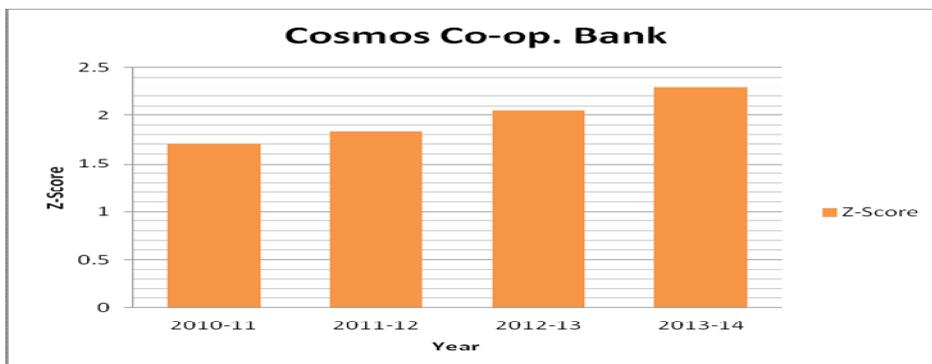
[4] The Cosmos Co-Operative Bank Ltd., Pune:

I. Table 4: Z-Score Analysis of last 4 Years:

	2010-11	2011-12	2012-13	2013-14
X1 = (Working Capital/Total Assets)	0.098766 698	0.310553 211	0.307343 987	0.323150 112
X2 = (Retained Earnings/Total Assets)	0.093375 31	0.007673 212	0.004032 566	0.008784 321
X3 = (EBITDA/Total Assets)	0.079889 614	0.087311 321	0.011196 644	0.098422 432
X4 = (Market Value Equity/Total Liabilities)	0.010850 958	0.020356 413	0.020414 321	0.017746 058
Z = 1.2*X1 + 1.4*X2 + 3.3*X3 + 0.6*X4	1.700605 497	1.833013 496	2.055931 104	2.293412 462

II. Graphical Representation:

Graph No.4: The Cosmos Co-Operative Bank Ltd., Pune

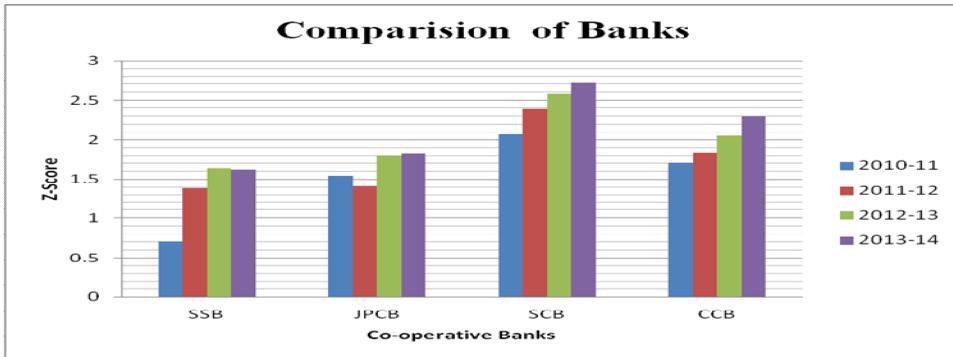


Interpretation: The Graph and Table No.4 have revealed that The Cosmos Co-Operative Bank Ltd. has achieved continuous improvement in Z Score Analysis.



1. Comparisons of all Banks :

Graph No.5: Comparisons of Bank on Z-Score basis



Interpretation: The Graph No.5 that all four ratios (parameter) and thereby Z Score of The Saraswat Co-Operative Bank Ltd., Mumbai (SCB) and Cosmos Co-operative Bank Ltd., Pune (CCB) are higher in all four years as compare to The Sunderlal Sawji Urban Co-operative Bank Ltd., Jintur, Parbhani (SSB) and The Jalna Peoples Co-operative Bank Ltd., Jalna (JPCB). From the Graph No. 5, the ranking of the sample Banks is as under:

Table No.5: Ranking on the basis of Z-Score

Banks	Rank
The Saraswat Co-operative Bank Ltd., Mumbai	1
Cosmos Co-operative Bank Ltd., Pune	2
The Jalna Peoples Co-operative Bank Ltd., Jalna	3
Sunderlal Sawji Urban Co-operative Bank Ltd., Parbhani	4

2. Comparison of The Saraswat Co-operative Bank with other three Banks on the basis of Z-Score [%]:



Table No.6: Comparison of The Saraswat Co-op. Bank with Cosmos Co-op. Bank, Jalna Peoples Co-op. Bank and Sundarlal Sawji Co-op. Bank.

Year	Saraswat Vs Cosmos	Saraswat Vs Jalna Peoples	Saraswat Vs Sundarlal Sawji
2010-11	82.61%	74.40%	34.30%
2011-12	76.89%	59.24%	57.98%
2012-13	79.84%	69.38%	63.57%
2013-14	84.50%	67.53%	59.78%

Findings:

1. **With reference to Altman Bank Z-Score:** Below 1.8 indicates a firm is headed for Bankruptcy; between 1.8 and 3.0 is a statistical "gray area." and above 3.0 indicates a firm is unlikely to enter Bankruptcy. Table and Graph No. 1 Shows that the Z Score of Sunderlal Sawji Urban Co-Operative Bank Ltd., has observed below 1.8 for all four years. However, the ratios of this Bank is indicating continuous rising trend.
2. The Graph No.5, Table No. 5 and Table no.6 have revealed that the Z-Score of The Saraswat Co-Operative Bank, Mumbai and The Cosmos Co-Operative Bank, Pune is higher than Sunderlal Sawji Urban Co-Operative Bank Ltd., Parbhani and The Jalna Peoples Co-Operative Bank, Jalna.

Suggestions:

(A) For the Banks:

- When there is insufficiency of working capital, the banks should take appropriate measures immediately.
- As per Altman Bank Z-Score, the Bank who falls below 1.8 should improve its overall performance to avoid insolvency.



- The Sample Banks has to be careful about the proper Assets and Liabilities Management.

Bank should consider the following factors to avoid Bankruptcy:

- Liquidity: X1 shows the liquidity, as per Z Score Analysis Banks get it by maintaining right proportion between working capital and total assets. This ratio indicates that, if Bank improves their working capital management it is positively affects on the liquidity position of the Bank. This shows a correlation between the working capital, liquidity position and Z-Score of the Bank
- Profitability: X2 shows the profitability position of the Bank, which is achieved by maintaining the appropriate ratio between the earning of the Bank that is Reserves plus Profit and Total assets. The improvement in profitability or business efficiency also improves the Z-Score of Bank. Therefore, sample Bank should make all possible efforts to increase their business efficiency.
- Leverage: X3 shows the present value of EBIT/total assets. The third ratio measures the efficiency that how many percent of operating income the Bank generates in earning for every asset it owns.
- Solvency: solvency is indicated by the X4 value of Z-Score. This includes the book value of equity shares to total liabilities. This fourth ratio is the fluid majors of the market confidence of the Bank.
- The present study has revealed that the Bank, which is having very lowest Z-Score, is of Sunderlal Sawji Urban Co-Operative Bank Ltd., Parbhani. Therefore, their management should concentrate on generating more earnings from their existing asset base. Sunderlal Sawji Urban Co-Operative Bank Ltd., Parbhani has a smaller



amount of working capital thereby this Bank's current assets are not adequate to meet its short-term liabilities. Further, it could have problems in paying back creditors in the short term, ultimately forcing it into Bankruptcy.

(B) For Depositors:

- Z-Score is the Alarming signal about Bank's solvency position. Therefore, it must be studied and used by Depositors while investing their funds in the Banks.

Conclusion:

1. The Z-Score Analysis is the tool to predict the probability that the Bank may face Bankruptcy within two years. Z-Scores are used to predict corporate defaults and an easy-to-calculate control measure for the financial distress status of companies in academic studies. The Z-Score uses multiple corporate income and balance sheet values to measure the financial health of a company. It is basically depends on four factors, namely Liquidity, Profitability, Leverage and Solvency.
2. As Z-Score is not depends upon the Bank's location. The present research paper reveals that the Z-Score of the The Saraswat Co-op. Bank and Cosmos Co-op. Bank located at Metropolitan City Mumbai and Pune respectively is comparatively higher than Sundarlal Sawaji Co-op. Bank and Jalna Peoples Co-op. Bank located at Jintur and Jalna. However, the sample size of research is restricted only to the analysis of Z-Score of four co-operative Banks. Hence, there is a further scope of a study the other Banks performance also.

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EVALUATING THE EFFECT OF PRETENSION ON THE FATIGUE LIFE OF DOUBLE LAP BOLTED JOINT FOR AIR CRAFT BY USING ANALYTICAL METHOD

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1. Introduction

According to research , the most of aircraft accidents occurs due to the failure of mechanical joints especially bolted joints which is mostly used in modern aircrafts. It is investigated that 55% damaged of mechanical components used in aircraft is due to fatigue failure, compared to 25% damaged of engineering components. In previous researches, bolted joints have high tensile and fatigue strength compared to other joints mostly fatigue occurs due to reasons like Design Errors, Microstructure of Materials and Corrosive attack on Materials. Hence to decrease these causes method like Finite Element Analysis is used in this research, so as to increase the fatigue life of bolted joint, this is carried out comparing analytical and experimental results to the previous research.

1.1 Fatigue Life of Material

In some mechanical systems, stresses vary with time or fluctuate between different levels. These stresses produced in machine member or in structural member are called fatigue stresses. (Repeated,



alternating, or fluctuating stresses). Sometimes, machine members are found to have failed under the action of repeated or fluctuating stresses, most studies reveals that the actual maximum stresses were well below the ultimate strength of the material, and quite frequently even below the yield strength. These failures is that the stresses have been repeated a very large number of times, then the failure is called a fatigue failure. Many static failures give visible warning in advance. But a fatigue failure gives no warning. It is sudden failure, hence dangerous.

Following Table shows the frequency of failure Mechanism

	<i>Engineering components</i>	<i>Aircraft components</i>
Corrosion	29	16
Fatigue	25	55
Brittle fracture	16	-
Overload	11	14
High temp corrosion	7	2
SCC/corrosion fatigue	6	7
Creep	3	-
Wear/Abrasion	3	6

Past research has shown that the bolt clamping effect can decrease the stress concentration at the bolted hole region and thus increase the tensile and fatigue strengths of the joint. However, it was also found experimentally that increase in the amount of clamping force can cause the phenomenon of fretting on the surfaces of mating bolted plates and this has a negative effect on fatigue life under cyclic loading. This especially happens when higher torque is applied to the nut in order to tighten the joint [1]. In this paper, efforts have been made to present various effective reliable analytical, numerical and



experimental techniques developed by various researchers for analysis of fatigue life of bolted joint.[2]

In this paper the effect of various parameters like crack propagation, crack location, and fatigue failure of the bolted joints have been reviewed.[3]

Jose Maria Minguez has presented that the life of bolted joint depend on two major points Pre-tensioning of bolts, material thickness⁴ says as the torque is increased to the bolts the compression increases and bolt gets tightened and due to this friction increases which avoids slippage of bolt and nut, due to this stress concentration at a particular point is distributed over large area of material around the hole, hence fatigue performance of bolted joint is improved [4].

J. Vogwell in his paper represented experimentally that a holed plate was clamped using bolt and nut and then tested under axial cyclic load in fatigue testing machine and results were obtained. and numerically the results obtained by the experimental calculations compared with numerical calculations using S-N curve for fatigue life of material. Also he concluded that lightly fastened that is finger tightened nut and bolt is subjected to low compressive force hence this delays the propagation of crack. simply it decreases the longitudinal tensile stress as due to the generation of direct stresses ,hence principal stresses in considered, which decreases magnitude of maximum shear stress which indirectly increases fatigue life of joint [5].

T.N. Chakherlou in this paper he has presented two methods of analysis of fatigue life which is Torque Tightening Method and Multi-axial Fatigue Analysis. In this Finite Element Analysis is used to obtained stress distribution in the joint plates due to clamping force and longitudinal loads. So as to find out joints performance [6].



B. Abazadeh has presented in his paper his calculation for pre-stresses and stress concentration factor which is then employed in AFGROW computer software to predict fatigue crack initiation and fatigue crack growth lives. Also he concluded that bolt clamping compressive pre-stresses increase FCI and FCG lives by decreasing the stress concentration and stress intensity factors respectively. Both numerical and experimental results show that the improvement in fatigue life due to the effect of clamping force is more beneficial at low amplitude cyclic loading than at high amplitude cyclic loading. This is because there is less bolt clamping force relaxation due to longitudinal applied load on the initial clamping force [7]

S. J. Findlay and N. D. Harrison has also concluded that Defect and failure investigations on aircraft structural components have an important role in improving aircraft safety. The identification of the primary cause of failure and the subsequent analysis enable recommendations for corrective action to be made that hopefully will prevent similar failures from occurring in the future.[8]

2. Materials & Methodology

2.1. Materials

Crack fatigue analysis is followed by authors by their method such as numerical, experimental, finite element method, torque tightening method, multi-axial fatigue analysis, AFGROW computer package. Study of aluminum alloys 2014-T6,7068-T6 by using S-N curve, finite element method.

2.2. Methods

- a. Stress-life method,
- b. Strain-life method and
- c. Linear- elastic fracture mechanics method.

2.2.1 Strain Life Approach

This method is based mainly for strain levels only, and also it is good for low cycle fatigue application. This method mainly depend on plastic strain at discontinuity which is very difficult to determine. Also the reference data required for this method is less hence is rarely used.

2.2.2 Fracture Mechanics Approach

It is the most accurate method to predict fatigue life, but it is difficult to find fatigue properties of each material. This properties are depends upon various conditions ranging from physical nature of material to manufacturing processes. If this method is to applied on specimen then it had to keep in closely controlled conditions.

2.3.3 Stress life Approach

Stress life approach is most commonly used to predict fatigue life, this method mostly based on S-N curves of material and reference data available for S-N curve is abundance. Compare to other methods experimental equipment quite easily available for this method. Hence is widely used.

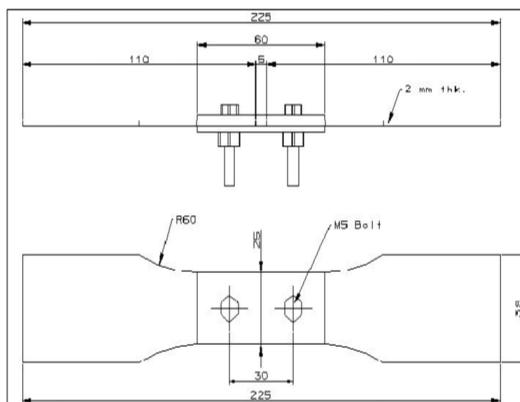


Fig: Double lap bolted joint Specimen

Equations:

$$S_e = K_a \times K_b \times K_c \times K_d \times S_e' \quad (1)$$

Where:

K_a = Surface factor

K_b = Size factor

K_c = Reliability factor

K_d = Modification factor

S_e' = Specimen Endurance limit

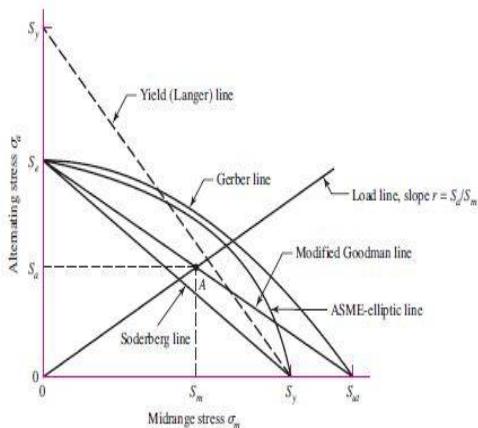


Fig: Soderberg, Goodman and Gerber line

$$S_f = S_{ut} \frac{(\sigma_a)}{(S_{ut} - \sigma_m)} \quad (2)$$

$$\frac{\log_{10} N - 3}{6 - 3} = \frac{\log_{10}(0.9S_{ut}) - \log_{10}(S_f)}{\log_{10}(0.9S_{ut}) - \log_{10}(S_e')} \quad (3)$$

Result and Discussion:

Table 1: Tensile test result for stainless steel



<i>Mat.</i>	P_{MAX} (KN)	P_{MIN} (KN)	S_{UT}	S_E	S_F	<i>N</i>
Al 7075	4.8	0.3	572	26.36	63.30	135772
Al 7068	4.8	0.3	710	29.49	61.79	189009

DISCUSSION:

Earlier, the material use in aircraft application have higher weight and lower strength which leads to fatigue failure results in less number of Fatigue life cycle, so to avoid this failure it is necessary to increase the strength of material to withstand for such heavy application which can be done by changing the material and material properties. So we have decided to use aluminum alloy 7068-T6 which has high tensile stress and low weight. It is seen from the previous study by increasing the torque for the tightening of nut and bolt, compressive force at the joint increases due to reduction in slippage and stress concentration also increases the friction.

3. Conclusion

- As from our observations when a material Al 7068-T6 having higher ultimate tensile strength increases the span required for the propagation of crack hence increases the fatigue life cycle of double lap joint.
- As from above results it can be conclude that the results of therotical calculation cannot be equal to experimental calculations.
- The research shows how pre-tensioning of bolts and material thickness increases the fatigue life cycle of double lap joint. When torque application at the bolt increases then it results in a compression of joint members, which causes friction between them and hence very high proportion of shear load may be



transmitted through the joint by friction, hence load is distributed over large area around the hole and hence stress concentration factor is vanished so fatigue performance of joint is much improved

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MUSCLE CONTRACTIONS IN PHYSICAL ACTIVITIES & SPORTS

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Introduction

The researcher tried to find out the various types of contraction in sports person`s movements. When talking about exercise, most people generally do not speak in terms that describe the type of muscle contractions (Concentric, Eccentric, and Isometric) they are going to put their muscles through, but rather, they tend to speak in terms that describe the exercise itself. For example, people generally tend to say they are going to lift weights, such as bench press, lat pull downs and maybe some biceps curls. You may also hear them say they are 'doing cardio today' which implies running on a treadmill, a bicycle and/or running on a track.

The movements that take place during activities such a running are due to the contraction of skeletal muscles pulling on bones which move at flexible pivot points, or joints. The several types of contractions that occur within skeletal muscles during running include isotonic concentric and isotonic eccentric contractions. Contractions also occur within your slow twitch and fast twitch muscle fibers.

Weight training, plyo training and cardio training, as effective as they are, only incorporate concentric and eccentric muscle contractions and therefore, if that is the extent of your speed training, you will be missing out on the third key ingredient in sports training, known as isometric contractions. Sports skills have very dynamic movements and with varying body positions and by training your muscles for every



position and movement in the sport skill you give yourself the greatest opportunity to succeed. Think how good you will feel and perform when your muscles have been conditioned using all three types of muscle contractions. Each contraction type plays a part in developing or performing most every sports skill including running, jumping, kicking, swimming strokes, swing a bat, tennis racket, golf club, or hockey stick.

Getting the Terminology Right

First, (and to make matters a bit more complicated), the term contraction, when used along side the word muscle, as in muscle contraction, is generally understood by most as shortening or reduction in the muscles' length and this is the dictionary definition. However in the athletic fitness world, this definition doesn't take into account the dynamic nature of a muscle to work while being forced in the opposite direction, as in muscle lengthening, nor does it take into account a muscles dynamic ability to work while remaining in a fixed position.

So while the words *muscle contraction* have taken on a broader meaning in the athletic fitness world, the actual definition of the word contraction, as defined in the dictionary, is a bit of a misnomer when talking about the different types of muscle "contractions".

Types of Muscle

There are three types of muscle found in the human body:

- 1.Skeletal Muscle
- 2.Smooth Muscle
- 3.Cardiac Muscle (heart muscle)

Skeletal muscle

Skeletal Muscles are those which attach to bones and have the main function of contracting to facilitate movement of our skeletons. They are also sometimes known as striated muscles due to their appearance.



The cause of this 'stripy' appearance is the bands of Actin and Myosin which form the Sarcomere, found within the Myofibrils. Skeletal muscles are also sometimes called voluntary muscles, because we have direct control over them through nervous impulses from our brains sending messages to the muscle. Contractions can vary to produce powerful, fast movements or small precision actions. Skeletal muscles also have the ability to stretch or contract and still return to their original shape.

Skeletal muscle fibre type

Not all fibres within Skeletal muscles are the same. Different fibre types contract at different speeds, are suited to different types of activity and vary in colour depending on their Myoglobin (an oxygen carrying protein) content.

Smooth muscle

Smooth muscle is also sometimes known as Involuntary muscle due to our inability to control its movements, or Un striated as it does not have the stripy appearance of Skeletal muscle. Smooth muscle is found in the walls of hollow organs such as the Stomach, Oesophagus, Bronchi and in the walls of blood vessels. This muscle type is stimulated by involuntary neurogenic impulses and has slow, rhythmical contractions used in controlling internal organs, for example, moving food along the Oesophagus or contracting blood vessels during Vasoconstriction.

Cardiac muscle (heart muscle)

This type of muscle is found solely in the walls of the heart. It has similarities with skeletal muscles in that it is striated and with smooth muscles in that its contractions are not under conscious control. However this type of muscle is highly specialized. It is under the control of the autonomic nervous system, however, even without a



nervous input contractions can occur due to cells called pacemaker cells. Cardiac muscle is highly resistant to fatigue due to the presence of a large number of mitochondria, myoglobin and a good blood supply allowing continuous aerobic metabolism.

Muscle Fiber Types

Within skeletal muscle there are three types of fiber:

Type I

Type I fibers are also known as slow twitch fibers. They are red in colour due to the presence of large volumes of myoglobin and so oxygen and high numbers of Mitochondria. Due to this fact they are very resistant to fatigue and are capable of producing repeated low-level contractions by producing large amounts of ATP through an aerobic metabolic cycle. For this reason the muscles containing mainly type I fibers are often postural muscles such as those in the neck and spine due to their endurance capabilities Also, athletes such as marathon runners have a high number of this type of fiber, partly through genetics, partly through training.

Type IIa

Type IIa fibers are also sometimes known as fast oxidative fibres and are a hybrid of type I and II fibers. These fibers contain a large number of mitochondria and Myoglobin, hence their red colour. They manufacture and split ATP at a fast rate by utilizing both aerobic and anaerobic metabolism and so produce fast, strong muscle contractions, although they are more prone to fatigue than type I fibers. Resistance training can turn type IIb fibers into type IIa due to an increase in the ability to utilize the oxidative cycle.

Type IIb

Often known as fast glycolytic fibers they are white in colour due to a low level of myoglobin and also contain few mitochondria. They



produce ATP at a slow rate by anaerobic metabolism and break it down very quickly. This results in short, fast bursts of power and rapid fatigue. As mentioned above, this type of fiber can be turned into type IIa fibers by resistance training. This is a positive change due to the increased fatigue resistance of type IIa fibers. These fibers are found in large quantities in the muscles of the arms.

Nerve Propagation & Motor Units

Nerve propagation is the way in which a nerve transmits an electrical impulse. In order to understand this, it is important to understand the structure of a motor neuron (nerve)

Nerve Structure

Each neuron contains a cell body and an axon. The cell body contains a nucleus which is the centre of operation for the neuron and dendrites or branched projections which act to conduct electrical impulses towards the nucleus. The axon (long thin part of the neuron) carries the electrical impulses away from the cell body and towards the muscle. At the end the axon branches into axon terminals and end at synaptic knobs which have contact with the muscle. Surrounding the Axon is a fatty covering called the Myelin sheath which acts to insulate the nerve. The sheath is not continuous however and contains breaks, known as nodes of ranvier. The impulse jumps from one node to the next, allowing a more rapid conduction. The picture below shows the structure of a motor neuron.

Nerve Propagation

Nerve propagation is the way in which an impulse is transmitted along the nerve. When not under impulse a nerve has a negative charge compared to its surroundings. This negative charge is called the resting membrane potential and in this state the neuron is polarized. In order for an impulse to travel along the neuron, the resting membrane



potential must be changed and become depolarized This occurs because the stimulus allows a surge of Na^+ ions (sodium) into the cell, which changes the charge, making the inside positive compared to its surroundings. This is depolarisation. When this reaches a threshold, an action potential is established and the impulse can travel along the neuron.

The 'all or none' law states that there must be a minimum level of depolarization for an action potential to occur. Without reaching this level, no impulse will be propagated. Prior to another action potential occurring the resting membrane potential must be restored. This ensures that each stimulus is kept separate. This repolarisation is achieved by the movement of K^+ (Potassium) ions out of the cell, restoring the internal negative charge.

Motor Unit

A motor unit is described as a single motor neuron and all of the muscle fibres it innervates. A motor unit can contain anywhere between 10 and thousands of muscle fibres. Muscles which produce large powerful movements contain motor units with large numbers of fibres, and those for small intricate movements contain only a few fibers per motor unit.

Where the synaptic knobs of the neuron meet the muscle fiber is known as the neuromuscular junction. When an impulse reaches the neuromuscular junction, a neurotransmitter called Acetylcholine is released which filters across the synaptic cleft (microscopic space between the synaptic knob and motor end plate). This causes depolarisation of the motor end plate and puts the sliding filament theory of muscular contraction into practice.

The 'all or none' law as mentioned above also applies to the contraction of fibers within a motor unit. When a motor unit activates, all of the fibers within the unit contract and at full force, there is no strong or



weak contraction. The strength of the resultant whole muscular contraction depends upon the number of motor units recruited.

Another way of increasing the strength of a muscle contraction is by decreasing the time between impulses so that the muscle fibers do not have time to relax, resulting in a continuous wave of contractions known as wave summation. To produce a strong contraction all motor units in the muscle are recruited, but only for a short time. In order to increase the length of a contraction a kind of rotation system is implemented whereby some units contract while others rest and continuously alternate. This is known as spatial summation or tetanus.

- ▶ Cell Membrane
- ▶ Motor Nerve.

What are the 3 types of muscles contractions?

So, the term tension, rather than contraction, is better suited to define the actions of a muscle.

Therefore, muscles, under tension, may

1. Shorten,
2. Lengthen, or
3. Remain the same length.

And it is these three different types of muscular tensions that are used to define the three different types of muscular "contractions". The three different types of muscular contractions, therefore, are:

1. Concentric contractions (shorten),
2. Eccentric contractions (lengthen)
3. Isometric contractions (remain the same).



Concentric contractions:

A concentric contraction is a type of muscle contraction where the length of the muscles shorten while undergoing tension. For example, when you pick up a curl bar and perform a biceps curl, the length of your biceps muscles shorten. Your hands start down by your sides, and ends with your hands up by your shoulders. The biceps muscles shorten during this motion.

Another example would be if you were to perform a couple of leg curls on a hamstring machine. As your knee is flexing, your foot is approaching your buttocks, and your hamstring muscles shorten in the process. Any muscle activity where the strength of the muscle can overcome the resistance of an object forcing the muscle's length to shorten is considered a concentric contraction. Therefore, most of the exercises that you would typically do at a gym by using the various machines and/or dumbbells, etc. involve concentric contractions.

Eccentric contractions:

An eccentric contraction is a type of muscle contraction where the length of the muscle elongates, or lengthens, while undergoing tension.

This can occur in two different ways:

a) Voluntarily Contractions, and

b) Involuntarily Contractions

a) Voluntary eccentric contractions: Let's use the same example above for the biceps curl. After you have completed the first part of the biceps curl, where your elbows are flexed, and your hands are holding on to the curl bar up by your shoulders, it is now time to return the weight back down towards your waistline. Typically this is done in a smooth and controlled motion where the muscle, in this case the biceps, acts to decelerate the elbow joint at the end of the movement. The same muscle that started this motion, the biceps, is now undergoing tension



in the opposite direction. It is now lengthening as it returns the weight back down towards your waist. This is an example of a voluntary eccentric contraction. Another similar example involves the hamstring muscles. Like the example above involving leg curls, as you return the weight back to its starting point, the knee joint extends slowly with the aid of the hamstrings. These muscles undergo tension, but now in the opposite direction, where they are lengthening. This is another example of a voluntary eccentric contraction.

b) Involuntary eccentric contractions: Involuntary eccentric contractions occur when the weight or resistance you are attempting to move or lift is too heavy or strong for the muscle to accommodate. The main difference between this, and the voluntary eccentric contractions, is the lack of control over the weight/resistance during an involuntary eccentric contraction. We can use a similar example for involuntary eccentric contractions as we did for the voluntary eccentric contractions. Using the biceps curl exercise, let's say that you have both of your elbows flexed, with your hands up by your shoulders, and someone hands you a 100 lb barbell. The average person who had been handed this weight, (if they don't just drop it) would immediately have their biceps muscles lengthened, even if they tried to prevent it by tensing them. This would be an example an involuntary eccentric contraction. It should be noted that muscles subjected to heavy involuntary eccentric loading beyond your control can suffer potentially greater damage when overloaded as compared to concentric (muscle shortening) and/or voluntary eccentric loading. Now, voluntary eccentric contractions are just as much a part of weight training as are concentric contractions. A concentric contraction is typically associated with the exercise itself, as in biceps curls, triceps push downs etc. But, concentric contractions only account for half of the repetition of that particular exercise. (ex. Biceps curl – the muscle shortens under tension while the elbow is flexing). The other half, the returning of the weight



to the starting position, is controlled through voluntary eccentric contractions. (ex. Biceps curl – the muscle lengthens under tension while the elbow is extending) Many times, however, exercises are purposely designed around a slow return of the weight back to its starting position only. This is what is termed as negatives with respect to weight training. And it is a known fact that muscles are typically stronger during voluntary eccentric movement (muscle lengthen) when compared to a concentric movement (muscle shortening). To understand why this is, just think that it is much easier to set a 100 lb package to the ground than it is to raise one up off the ground. Weight training therefore, involves concentric muscle movements, voluntary eccentric muscle movements, and occasionally, involuntary eccentric movements.

Isometric contractions:

An isometric contraction is a type of muscle contraction where the length of the muscle doesn't change while undergoing tension . An example of this would be if you were to take a 20 pound weight and perform a biceps curl and hold a position halfway between the repetition for 10 seconds. The length of your biceps muscle doesn't change during this time, however a force is still being applied.

Another example would be if you were to push against a wall for 10 seconds. The wall doesn't move and neither does the length of the muscles in your arms pushing against it. Again, a force is still being applied.



Below is a table depicting the characteristics of the three different subtypes of muscle fibers.

Characteristic	Slow Twitch (1)	Fast Oxidative (2a)	Fast Glycolytic (2b)
Myosin ATPase activity:	Low	High	High
Speed of contraction:	Slow	Fast	Fast
Fatigue resistance:	High	Intermediate	Low
Oxidative capacity:	High	High	Low
Anaerobic enzyme content:	Low	Intermediate	High
Mitochondria	Many	Many	Few
Capillaries:	Many	Many	Few
Myoglobin content:	Low	Low	High
Color of fiber:	Red	Red	White
Glycogen content:	Low	Intermediate	High
Fiber diameter:	Small	Intermediate	Large

Conclusion

As shown, athletic success may depend largely on ones muscle fiber composition. With the greatest sprinters requiring a large number of fast twitch fibers and marathoners needing a predominance of slow twitch fibers, it is clear that athletes are blessed with the genetic goods to dominate in their respective sports.

However, although fiber types are probably very important, diet, training type, mental attitude and rest are ultimately deciding factors in all sports performance, ex-Kho-Kho, Kabaddi, Wrestling, etc..



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BIOMETHANATION OF LEFTOVER FOOD WASTES MIXED WITH COW MANURE

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Introduction

The depletion of non-renewable energy sources invokes the need to search for other locally available renewable resources. The search for alternative renewable energy sources is needed not only for replacement of fossil fuels but also to meet environmental protection demands. Climate problems have all contributed to the recognition of the value of anaerobic digestion of organic wastes as an alternative renewable source of energy [1].

Anaerobic digestion or Biomethanation is an important biological process that converts organic matter in the absence of oxygen to biogas and leaves stabilized residue (fertilizer). Biogas so produced can be used for cooking purposes, light and electricity production and as an alternative vehicle fuel. Use of biogas for cooking purposes leads to substantial reduction in the amount of firewood consumption. Presently, utility of biogas as a viable source of energy is taking root [2].

Leftover foods are scraps of edible portions of food items that remain unused after a meal. Undoubtedly contribute its share toward forest preservation and protection of the environment, leading to reduction in health problems emanating from inhalation of the smoke.

Cow manure (CM) is a farm waste generated daily. Although some amount of it is used for production of energy at household levels,



sizable amounts are discharged into rivers and cause water pollution [3,4]

The production of methane during the anaerobic digestion of biologically degradable organic matter depends on the amount and kind of the material added to the system. So, leftover foods and cow manure may be subjected to anaerobic digestion for energy production in a variety of ways. The leading concepts now-a-days are: single-phase digestion, two phase digestion, dry fermentation and co-digestion [2]. An interesting option for improving yields of anaerobic digestion of wastes are co-digestion, which employs a co- substrate that has the benefit of improving the biogas yields due to positive synergism established in the digestion medium and the supply of missing nutrients for microorganisms [3]. So, using co-digestion of leftover foods, fruit and vegetable wastes and cow manure is an alternative way to improve biogas technology. The reactor used in this type of system would almost certainly need to be operated at mesophilic temperatures (between 25°C and 40°C) to minimize heating costs. Even if the methane yield was better under thermophilic conditions (between 55°C and 60°C), it would very likely not be enough to offset the cost of maintaining the reactors 15° to 30° hotter.

This study aims at the biomethanation of leftover food wastes mixed with cow manure (CM) by co-digestion system. Various ratios of mixed wastes shall be prepared to feed the anaerobic digester.

General objective

Evaluate the feasibility of biomethanation of leftover foods mixed with cow manure for energy generation.

Specific objectives

1. Promote biogas production and its utilization in the study area and communal households.



2. To study the feasibility and potential use of Biomethanation of biodegradable wastes specifically leftover food wastes and cow manure for biogas production.
3. Encourage the community to generate biogas to meet household energy requirements.
4. Contribute towards attempts to minimize deforestation.
5. To contribute towards attempts to maintain environmental cleanliness.
6. To produce organic fertilizers

1. Materials and Methods

In this work, various types of leftover foods from students' cafeteria of Mettu University mixed with cow manure (CM) are used as substrates for biomethanation in plastic anaerobic digester having different size. The constructed anaerobic digester contains three holes, which used for inlet for substrate, outlet for digested waste (fertilizer) and outlet for the gas produced through plastic rubber separately.

1.1. Substrate Collection

1.1.1. Leftover foods

Leftover foods for the present study were collected from Bahir Dar town of different restaurants. The leftover food collected from their sources contains *bread, injera, noodle, cooked pasta, kinche, mokoroni mixed with shiro and misir watt*.

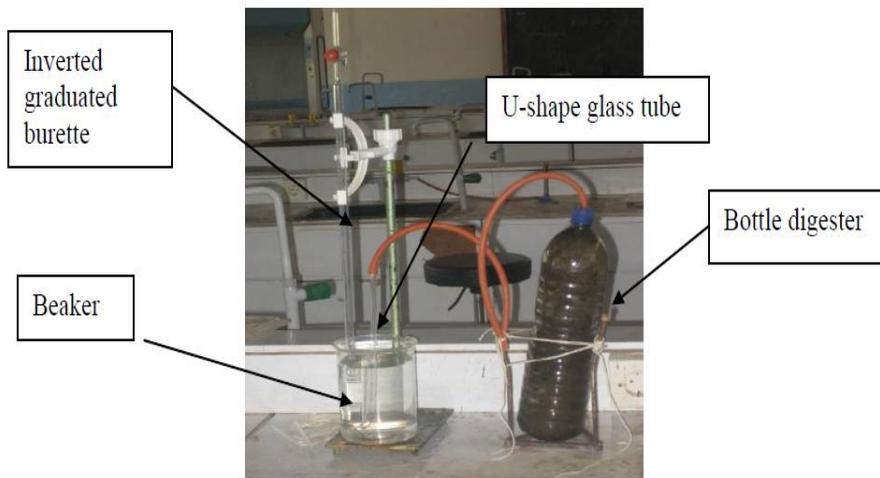
1.1.2. Cow manure

Cow manure used in the present study was collected from Bahir Dar University's ranch in the Main Campus. The cow manure collected was not more than one day old.

Measurement of Biogas Generated

The volume of biogas generated from a given mass of substrate was estimated using a water displacement technique as shown in Figure 11. In a typical experiment, a plastic digester containing the substrate was connected through a rubber tube bearing a U-shaped glass tube at the end. The glass tube was inserted into an inverted graduated burette prefilled with water and dipped into a trough containing sufficient amount of water. The biogas from the digester was then allowed to flow into the burette where it was collected through displacement of water [5].

The volume of biogas produced per unit mass of substrate was thus estimated from the volume of water displaced from the burette.



1.2. Sample Preparation

After collection of the wastes from their source: Plastic materials, other food items such as bones, non-digestible materials like stones were



carefully separated from the substrate. Before mixing the waste the weight of the substrate were measured and registered. The amount of the substrate used for the present work is shown in table 1. The proportion and type of FVW and leftover foods used for biogas generation is shown in Table 1.

Table 1: Composite of leftover foods and cow manure for present study for biomethanation

Name of wastes	Weight in percent
Cow dung (cow manure)	20
Bread	12
Injera	18
Noodle	16
Cooked rice	8
Mixed leftover foods	26
Total	100

Following collection of the leftover food and cow manure, the wastes were prepared for feedstock by chopping manually to an approximate size of 0.5-5 mm. After the size-reduction waste was sampled and the characteristics of the wastes were analyzed.

1.2.1. Preparation of Mixed Wastes

Slurry of approximately 6.5Kg of the mixed waste (consisting of the type of wastes listed in the above table poured to anaerobic digester in about 1:5 of tap water was fed into the digester.

1.2.2. Start-up

Slurry obtained by mixing fresh cow manure and tap water in a 1:5 ratio by weight was used for start-up of the digestion for three days to generate micro organisms used for the biomethanation process.



1.2.3. Feeding of the slurry to anaerobic digester

Before feeding into digester, the slurry was mixed by hand in a separate container for few minute and fed to the digester daily for one week. After feeding the mixed waste into the digester the mouse of the digesters were closed to prevent leakage of gas and entrance of oxygen which inhibit growth of methanogenic bacteria.

1.2.4. Data Collecting and Analysis Method

The physical characteristics (total solids; volatile solids; moisture content and ash content) were analyzed by a standard method for the examination of water and waste water [4]. The temperature and the pH in each digester were measured at the start. The slurry was sampled at start-up and end of the digestion for the total solids (TS), volatile solids (VS), ash content and moisture content determination.

2. Result and Discussion

2.1. Composition and Characteristics of the Wastes

Table 2 present's data on the moisture content, total solid, volatile solid and ash content of the wastes used for the present study. From the table it is evident that cow manure had maximum moisture content of 79.755% and breads the least with a moisture content of 44.18%. The maximum TS were recorded in bread (55.82%). The VS in all wastes used for the study varied from 91.56% (cow manure) to 96.14% (mixed leftover foods). The results obtained from the present work for individual wastes are comparable with values reported by Mital [6]. Working on food processing wastes including peels of mango, tomato, lemon, orange and pineapple, Nand [7] has reported that the TS content in them varied from 28.4% to 23.4%. The values for VS obtained presently are also comparable to 92.73% reported by Nand for



rotten fruits and vegetable wastes. The percent of high moisture content in the organic waste facilitates the anaerobic digestion [8].

Table 2: Characteristics of wastes used for feed

Sl. No	Name of wastes	Weight (g)	Moisture content (%)	Total solid (%)	Volatile solid (%)	Ash content (%)	TS/VS (%)
1	Bread	12	44.18	55.82	92.08	7.82	0.61
2	Injera	18	60.57	39.43	93.78	6.22	0.42
3	Cooked pasta	16	76.88	23.12	92.81	7.19	0.25
4	Mixed leftover foods	26	64.66	35.34	96.14	3.96	0.37
5	Cooked rice	48	67.95	32.05	93.2	6.8	0.34
6	Cow dung	13	79.75	20.25	91.56	8.44	0.22

The characteristics of cow manure studied in this paper are as follows: the TS 20.25% of wet weight, VS 91.56%, ash content 8.44% and moisture content of 79.75%. Some characteristics of CM reported by different researchers include: 16% TS by Somachi [9], 77% moisture content by Nusara [5], 9.3% TS and 80.3% VS by Chongrak [10]. The present study also agrees with the values reported by these researchers.

In this study we have two types of mixed wastes: - food waste mixed with cow manure and fruit and vegetable waste mixed with cow manure in separated digester.

The mixed wastes of FVW and CM consisted of 75:25 in ratio respectively. The characteristics of these wastes were found to be: TS 20.65% of wet weight, VS 96%, ash content 4% and moisture content of 79.35%. The mixed wastes of leftover food of students cafeteria mixed



with CM consisted of 75:25 ratios. The characteristics of these wastes found to be TS 35.34% of wet weight, VS 96.14%, ash content 3.88% and moisture content of 79.35%.

The pH of mixed wastes in each digester ranged from 6 to 7.2 which are comparable with the optimum range of pH for production of biogas [11]. This result showed that the microorganisms in the anaerobic digesters were not affected by the pH of the slurry in the digester. Therefore, no inhibition of biogas production wastes mixed with cow manure due to effect of pH. The temperature in all digesters ranged from 26 to 32°C which happens to be in the range of mesophilic, 25-45°C which is allowed for production of biogas.

2.2. The Efficiencies of Total Solids and Volatile Solids Reduction

Table 3: Efficiency of Total Solids and Volatile Solids Reduction

Component	Food waste + cow manure		
	initial	Final	reduction
TS	35.34	17.53	17.81
VS	96.14	54.8	41.34
TS/VS	0.367	0.32	0.047

The steady state of anaerobic digesters in this investigation occurs after 15 days of the start-up process. During the steady state, the efficiencies of averages of total solids (TS) and volatile solids (VS) reduction for food wastes mixed with cow manure (17.81 and 54.85 respectively) This indicates that the mixed wastes are converted to biogas thus necessitating addition of further substrate into the digester. The initial TS/VS of the mixed waste of fruit and vegetable waste mixed with cow manure were 0.315. After the anaerobic digestion of the mixed waste, the final TS/VS of the residue waste dropped to 0.278. The initial TS/VS of the mixed waste of leftover foods mixed with cow manure were 0.37.



After the anaerobic digestion of the mixed waste, the final TS/VS of the residue waste dropped to 0.32. The difference between the initial mass of TS/VS residue was 0.05.

2.3. Biogas production

Biogas generation in all the digesters constructed was evident that pressure build-up in the empty space of each digester was noted after 13 days of start up. Combustibility of the biogas generated in the digesters was tested using a Bunsen burner that was connected to the gas outlet through a rubber tube.

3. Conclusions

The efficiency of TS and VS reduction of leftover food waste mixed with cow manure were (17.81 and 54.85 respectively. It is observed from reduction of TS/VS that production of biogas from leftover food waste of students cafeteria mixed with cow manure will give biogas. The process of biogas production is not merely source of energy, but also used as source of organic fertilizer.

Biogas production process is microbial in nature is affected by temperature, pH, volatile fatty acids, microbial population and ammonia. The control of these factors determines the quality and quantity of biogas produced. Production of biogas from food waste is a major step toward harnessing one of the world's most prevalent, yet least utilized renewable energy resource.

As the world's population grows and pressure on finite resources increases, we all have a responsibility to adopt the way "reuse, reduce and recycle" when it comes to resources and waste. Through the use of green technologies like anaerobic digestion, can avoid the emission of harmful greenhouse gasses and make a positive contribution to environmental targets.



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CHROMATOGRAPHIC SEPARATION STUDIES OF CEPHALOSPORIN ON SILICA LAYERS WITH DIFFERENT SOLVENT SYSTEMS

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INTRODUCTION:

Cephalosporins are beta lactam antibiotics showing their activity against gram negative and gram positive bacteria¹. Their mechanism of action is by inhibiting biosynthesis of bacterial cell wall. These drugs show resistance of penicillinase and show the ability to combat infections which are penicillin resistant¹. Various methods have been reported which shows cleavage moiety of beta lactam cephalosporin structure. These methods are as spectrofluorometric²⁻⁵ and Spectrometric⁶⁻⁷. In this paper an attempt has been made in order to separate and identify the cephalosporin drugs via thin silica gel plates. Since this is an ideal technique due to its simplicity, sensitivity, economic and precision. Around thirty solvent systems have been developed for separation and identification of spots with silica gel G₆₀ F₂₅₄ as stationary phase.

EXPERIMENTAL:

Apparatus:

The thin layer chromatography system consisted of a Camag sintered TLC chambers for running of solvent systems and Camag U.V chamber for detection of spots at 254 nm and 366 nm.



Materials:

Silica gel G₆₀ F₂₅₄ precoated aluminium plates of 0.25 mm thickness of size 20 x 20 cm manufactured by Merck Damstadt, Germany. A Hamilton syringe of 10 micro liters was used and calibrations at 0.1 micro litre intervals were used.

Reagent and chemicals:

All solvent and reagent systems were of analytical grade and prepared fresh for conducting experiments.

Preparation of reagents:

- Iodine solution: 0.2 g of potassium iodine and 0.4 g of iodine mixed in a 20 ml of ethanol and 5 ml oh hydrochloric acid.
- 1 N Sodium hydroxide solution: 1 g of sodium hydroxide in 25 ml of distilled water.
- 1 % (w/v) starch solution: 1 gm of starch in 100 ml of water and heated gently.
- Ninhydrin reagent: 0.1% ninhydrin is dissolved in 10 ml of ethanol.
- Mercuric chloride – diphenyl carbazone solution: 1 mg of mercuric chloride and 1mg of diphenyl carbazone dissolved in 10 ml of water.
- Potassium per magnate solution: 1 mg dissolved in 10 ml of water.
- Iodine-azide solution: 1.269 g of resublimed iodine is been dissolved in 2.5 ml of solution of 1.5 gm of potassium iodide, which is already free from iodate when mixed after swirling, then dilute it to 100 ml in order to prepare 0.1 N iodine solution.
- Ferric chloride reagent: 0.5 g of ferric chloride has been dissolved in 0.5 M of hydrochloric acid.



Preparation of sample solutions:

Stock solutions of Cefadroxil (CFD) , Cephalixin (CFL), Cefazolin (CFZ) , Cefuroxime (CFR), Cefixime (CFX) , Cefpodoxime (CPD) , Ceftriaxone (CFT), Ceftazidime (CTZ) and Cefepime (CFP) was prepared by dissolving 0.5 g of each antibiotic in a 10 ml of methanol.

Procedure:

Silica gel G₆₀ F₂₅₄ aluminium thin layer chromatographic plates were used which has 0.22 mm thickness and 20 x 20 cm size. These plates were first activated at 110° C for about 30 min. These TLC plates were divided into 1.5 cm wider and on them solute spots were spotted for approx two to three times each by calibrated Hamilton syringe. Later , after spotting these plates were kept into an sintered chambers containing developing solvents which are listed in table 1 below these systems were prepared 30 min before placing plates into them in order to attain saturation. The TLC spot points were not allowed to be immersed in a chamber system. After allowing TLC plates to run in solvent system in ascending direction of up to seventy percent, they are taken off and dried in air. The TLC plates were viewed under non destructive U.V. chamber at 254 nm and 366nm. After U.V. detection the spot were visualized by spraying reagents. Eventually the R_f values were recorded to interpret the findings.



Table 1: Developing solvent system

S. No.	System	Developing system	Ratio (v/v)
1	A	Butanol : Water : Ethanol : Acetic acid	5:2:1.5:1.5
2	B		6:2:2
3	C	Butanol : Water : Acetic acid	6:2:2
4	D	Ethyl acetate : Water : Acetic acid	4.5:5:0.5
5	E	Ethyl acetate : Methanol : Acetic acid	9.5:0.5
6	F	Acetone : Acetic acid	6.5:1.4:1.4:0.7
7	G	Acetone : Benzene : Water : Acetic acid	7:3
8	H		10:1.5
9	I	Ethanol : Water	6:3:1
10	J	Methanol : Ammonia	5:5
11	K	Ethyl acetate : Methanol : Water	3:7
12	L	Acetone : Methanol	3.5:3.5:3
13	M	Isopropanol : Methanol	3.5:3.5:3
14	N	Butanol : Ethanol : Water	4:1:5
15	O	Butanol : Pyridine : Water	5:2.5:1.5:1
16	P	Butanol : Acetic acid : Water	4:3.5:1.5:1
17	Q	Ethyl acetate : Acetone : Water :	7:3
18	R	Acetic acid	4.5:4:1.5:5
19	S	Acetone : Chloroform : DMF : Acetic acid n-propanol : Water Methanol : Chloroform : Water : Pyridine Butanol : Water : DMSO : Acetic acid	6:1.5:2:5
20	T	Acetone : Acetic acid	8:2
21	U	Acetone : Methanol	1:9
22	V	Methanol : 3 drops ammonia solution	10:3 drops
23	W	Toluene : Ethyl acetate : Formic acid	1:5.8:2.2:1.0
24	X	: Water	6:4:0.2
25	Y	Methanol : Ethyl acetate : Ammonia	7.5:2.5:2.5:1.5
26	Z	Ethyl acetate : Acetone : Methanol :	5:5
27	AA	Water	5:5
28	BB	Water : Ethanol Water : Methanol Acetonitrile : Water	0.5:9.5



TABLE 2: R_f VALUES OF CPHALOSPORINS

S.No.	Drug	R _f values													
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	CFD	0.15	0.17	0.19	0.14	0.15	0.18	0.75	0.73	0.60	0.68	0.58	0.47	0.82	0.92
2	CFL	0.20	0.20	0.22	0.18	0.21	0.24	0.71	0.73	0.52	0.64	0.57	0.67	0.82	0.50
3	CFZ	0.31	0.30	0.26	0.28	0.29	0.27	-	0.86	0.55	0.81	0.71	0.55	0.85	0.49
4	CFR	0.42	0.45	0.48	0.36	0.40	0.46	0.88	0.86	0.53	0.79	0.66	0.72	0.82	0.62
5	CFX	-	-	-	0.26	0.25	-	0.50	0.77	-	0.34	-	-	0.67	-
6	CPD	-	-	-	-	0.25	-	-	-	-	-	-	-	-	-
7	CFT	0.67	0.69	0.72	0.55	0.60	0.64	0.55	0.76	0.57	0.64	0.63	0.45	0.78	0.42
8	CTZ	0.58	0.60	0.61	0.46	0.51	0.57	0.50	0.30	0.43	0.69	-	-	-	-
9	CFP	-	-	-	-	0.15	-	-	0.80	-	0.78	-	-	0.53	0.66



TABLE 3: R_f VALUES OF CEPHALOSPORINS

S.No	Drugs	R _f values													
		O	P	Q	R	S	T	U	V	W	X	Y	Z	A''	B''
1	CFD	0.70	0.13	0.76	0.60	0.10	-	0.88	0.90	0.67	0.45	0.40	0.27	0.29	0.33
2	CFL	0.97	0.20	0.75	0.67	0.13	0.33	0.77	0.79	0.70	0.39	0.44	0.33	0.40	0.20
3	CFZ	0.92	0.57	0.86	0.70	-	0.69	0.68	0.82	0.54	0.67	0.32	0.45	0.30	0.45
4	CFR	0.43	-	0.57	-	0.69	-	0.54	0.87	0.77	-	-	-	-	0.56
5	CFX	-	-	0.52	0.13	0.20	0.10	-	0.75	0.57	0.36	0.35	-	-	-
6	CPD	-	-	-	-	-	-	-	-	0.24	0.14	-	0.64	0.62	0.67
7	CFT	0.85	0.03	0.87	0.64	0.09	-	0.79	0.67	-	0.36	0.39	-	0.56	-
8	CTZ	0.05	0.14	-	-	0.06	-	-	0.75	-	0.21	-	-	0.67	-
9	CFP	0.05	-	-	0.08	-	-	0.75	0.84	0.15	-	-	-	-	-



TABLE 4: DEVELOPED COLOUR SPOTS

Spray Reagent	Drugs								
	CFD	CFL	CFZ	CFR	CFX	CPD	CFT	CTZ	CFP
U.V. 254 nm	Brown	Brown	Brown	Brown	Whitish brown	-	Brown	Brown	Whitish brown
U.V. 366 nm	Fluorescent blue	Fluorescent blue	-	Dark blue	-	-	Pale blue	dark blue	-
Iodine vapour	yellow orange	Yellow orange	Brownish white	yellow orange	-	-	Yellow orange	Yellow orange	Whitish brown
Mercuric chloride-DPC	Yellow brown	Yellow brown	Yellow brown	Yellow brown	-	-	-	Yellow brown	-
Ninhydrin	Orange	Orange red	Orange	Orange red	-	Orange	-	Orange red	-
KMnO ₄	Yellow brown	Yellow brown	Yellow brown	Yellow brown	-	-	Yellow brown	Yellow brown	Yellow brown
NaN ₃ -I ₂	Whitish brown	Whitish brown	Whitish brown	Whitish brown	Whitish brown	-	-	-	-



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FIGURE 1: TLC OF CEPHALOSPORINS BY SOLVENT SYSTEM (H)

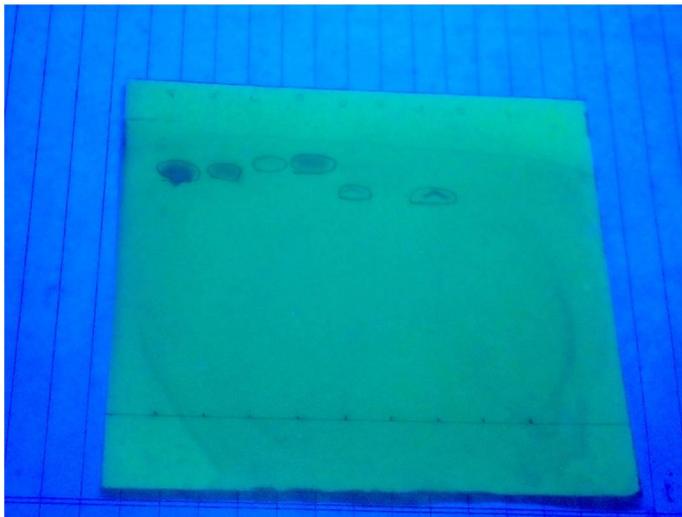
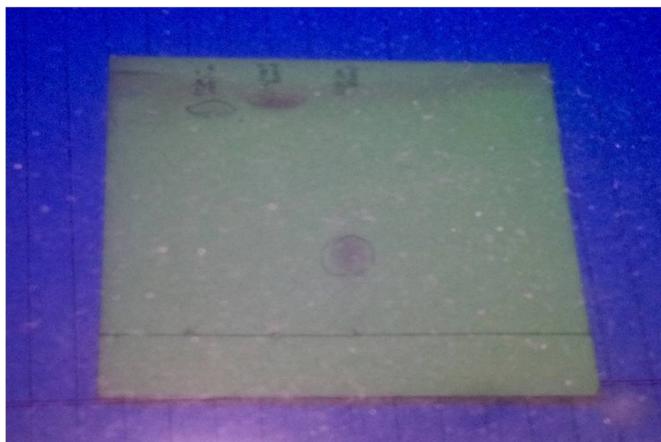


FIGURE 2: TLC OF CEPHALOSPORIN FOR SOLVENT SYSTEM (G)





ENHANCING THE ROLE OF CIVIL SOCIETY IN PREVENTING CORRUPTION: THE NEED FOR PROTECTING WHISTLE BLOWERS

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I. Introduction

In 1903, in a lecture to the Episcopal bishops and clergy at Washington, Theodore Roosevelt said:

There are plenty of questions about which honest men can differ. But there are certain greater principles concerning which no man has a right to have but one opinion. Such a question is honesty, the honesty that is aggressive, the honesty that not merely deplores corruption—it is easy enough to deplore corruption—but that wars against it and tramples it underfoot.¹

India is currently facing the paradox in terms of development. A recent study by International Monetary Fund (IMF) projected India as the second largest growing major economy for 2011-15 after China in the world (Minney, 2011, p. 58). While India's economy is growing at roughly 8 percent a year, official corruption has become a widespread problem². India's rank (87) on a list of 178 countries in Transparency Index for the year 2010 corroborates this fact³. Prime Minister Manmohan Singh's national address on India's sixty fourth Independence Day shows has dealt more with corruption. The recent Telecom scam and Commonwealth Games corruption e clearly indicate the deeply entrenched corruption in Indian politics and administration. The fight against corruption has manifested in two ways. While the state itself pledged to eradicate poverty, on the other hand civil society

¹ New York Times, 7 November 1904, <http://query.nytimes.com/mem/archive-free/pdf?r=1&res=9805E1D7123AE733A25754C0A9679D946597D6CF> (12/04/2010), viewed on 28 July, 2011

² http://www.nytimes.com/2011/08/17/world/asia/17india.html?_r=3&ref=global-home, viewed on 17 August, 2011.

³ http://www.transparencyindia.org/resource/press_release/.pdf.



organizations (CSOs) has started their fight in the mid of 2011. Although the Right to Information (RTI) was exercised by the individuals to weed out corruption in India, the exercise of the right met with resistance by the state and the culprits who are exposed in the graft charges. There have been incidences of harassment of the whistleblowers directly and indirectly. Thus a double edged-attack on the whistle blowers has become a trend in the recent times. It is at this background the article made an attempt to provide an overview of the trend in corruption after globalization, the institutional mechanism to combat corruption, the role of civil society in the fight against corruption, the effectiveness of RTI, need to provide protection to whistleblowers.

II. Dimensions of Corruption and Its Consequences: An Overview

N Vittal former Commissioner of Central Vigilance Commission says that **“The War against Corruption is Mother of all Wars”** mentioned in his book named *Corruption in India: The Road Block to National Prosperity (2003)*.⁴ India continues to face major governance challenges. There is a lack of transparency and accountability in governance rules, procedures are intricate and the bureaucracy enjoys broad unrestricted power. Nepotism is entrenched in the civil service, journalists are harassed for exposing on corruption and recent years have seen an increase in off-the-books campaign finance arrangements.⁵ During the past decade, scams, swindles, and rip-offs have become a usual feature of the Indian political and corporate landscape, costing taxpayers, investors and banks thousands of cores of rupees. Corruption existed in every department i.e. in bureaucracy, The **Bertelsmann Foundation 2008** report tells that India is characterised by a deeply rooted patronage system and pervasive corruption at all levels of the polity and administration.⁶ The entry of criminals into politics - despite laws requiring public disclosure of candidates' assets, criminal records and educational backgrounds – is

⁴ Vittal. N. (2003), “Corruption in India: The Road Block to National Prosperity”, Academic Foundations, New Delhi, Back cover Page.

⁵ (<http://report.globalintegrity.org/India/2007>), viewed on 25 July,2011

⁶ (<http://www.bertelsmanntransformation-index.de/125.0.html?&L=1>), viewed on 25 July,2011



another alarming facet of political corruption in India. More recently, a Parliamentary Enquiry Committee was established to look into the alleged cash-for-votes scam during a trust vote that took place in July 2008. Three parliamentarians displayed wads of currency notes alleging that huge sums were offered to them to save the Manmohan Singh government. The report presented in December 2008 found the evidence unconvincing and recommended further investigations on the role played by the three parliamentarians. Vulnerable sectors and Intuitions particularly during tenders, public procurement, license and public utilities, police force, judicial corruption and also in service sector corruption flow are become rampant as well.

Corruption is defined in several ways by the scholars. Corruption is the misuse of entrusted power for private gain.⁷ Rossouw defined corruption as inducement by improper means to violate one's duty towards one's principal resulting in harm to the interest of another party and in financial benefit for the perpetrator. In other words, corruption is said to have taken place when there is aberration in the way of doing things normally. In public affairs, corruption includes embezzlement of public funds, theft, bribery or any attempt to steal or unlawfully obtain or misuse any asset or power.⁸ Prevention of Corruption Act, 1988 (Section 7) defines corruption as: "*Whoever being or expecting to be a public servant, accepts or obtains, or agrees to accept, or attempts to obtain gratification whatever, other than legal remuneration as a motive or a reward or for bearing to do any official act or for showing or for bearing to show, in the exercise of his official functions favors or disfavor to any person with the Central or State Government or Parliament or Legislature of any State or with any public servant as such*".⁹

As Cartier-Bresson¹⁰ recently argued, Theoretical and empirical analyses of the causes and consequences of, as well as the means of fighting against, corruption has reached a certain level of maturity. The functionalist currents, which viewed corruption as a system that lubricates the cogs of the bureaucratic machine, have disappeared. Economists have reached a consensus on the very negative effects of

⁷ <http://www.u4.no/document/showdoc.cfm?id=144>, viewed on 15 August, 2011

⁸ Rossouw, G.J. (1999), "Defining and Understanding Fraud", in Rossouw, G.J. and Carabine, D. (eds), *Fraud and the African Renaissance*, Kampala: UMU Press, pp.13-24.

⁹ http://cbi.nic.in/rt_infoact/pcact.pdf, viewed on 17 August 2011

¹⁰ <http://www.u4.no/themes/ces/postconflict/odonnell.pdf>, viewed on 5 August, 2011



the phenomenon... Unfortunately, this maturity has still not paved the way for a meaningful advance in the improvement of governance, for the political barriers erected by the losers of such reforms are formidable.

Corruption poses a serious problem to achieve Millennium Development Goals (MDGs). The effect of corruption are vividly elucidated by the former Secretary General of United Nations, Kofi Annan: *“Corruption hurts the poor disproportionately by diverting the funds intended for development, undermining a government’s ability to provide basic services, feeding inequality and injustice and discouraging foreign aid and investment. Corruption is a key element in economic underperformance and a major obstacle to poverty alleviation and development”* (United Nations Office on Drugs and Crime, 2004, p. xiii)

The Santhanam Committee (1964)¹¹ constituted by the Central government has identified certain procedural causes of corruption. These are: red tape and administrative delay; unnecessary regulations; scope of personal discretion; cumbersome procedures; scarcity of goods and services and lack of transparency. Other reasons for corruption are where officers on behalf of the State engage private companies to perform specific tasks or public works or provide services and these companies, in collusion with officials, indulge in corrupt practices such as overcharging, providing low quality work, etc. Secondly, wide discretionary powers conferred to people with specialized skills and knowledge as in the field of defense projects can lead to corrupt practices, for example, HDW Submarines, defense purchases, etc. Thirdly, lack of transparency, unclear, ambiguous and technically complicated regulations lead to corruption, as the public is unable to exercise effective control. In the absence of adequate systems and action, corruption in government can grow and spread as the period in power extends. Tony Fitzgerald QC made the point that:

As matters progress and the Government stays in power, support will probably be attracted from ambitious people in the public service and the community. Positions of authority and influence and other benefits can be allocated to the wrong people for the wrong reasons. If those who succeed unfairly are encouraged by their success to extend their misbehaviour, their

¹¹ Santhanam Committee Report (1964)



example will set the pattern, which is imitated by their subordinates and competitors.¹²

III. Corruption in Post-independence India: Institutional Mechanism

Kautilya singles out corruption as a major threat to the state. He spells out forty kinds of misuse and recommends again an elaborate system of espionage, paid informants, and incentives, both negative and positive, to check corruption. Penalties range from death for theft of objects of high value in state mines and factories to a varying scale of fines. Other penalties include publicly smearing the corrupt official with cow dung and ashes and 'proclaiming the guilt,' shaving his head and exiling him. Sometimes corrupt police officers would let the prisoners break away after taking a healthy amount of bribe.¹³ However, if they were caught, both the escaping prisoner and the corrupt police official were sentenced to death at the same time. Considering the present day situation of law and order in a number of agitated places in India, as well as the general corruption on the part of some police officers, we may quite confidently conclude that the system of the age of the *Arthashastra* was quite good enough as it succeeded to reduce the number of such cases by a significant degree.¹⁴

One can observe the trends in curbing corruption in India. The most serious discussion in Parliament on the subject of corruption took place in the early sixties when Shastri was the Home Minister. Under his direction a committee headed by K. Santhanam (1964), Member of Parliament was constituted to study corruption and to suggest measures to control this menace. The anticorruption infrastructure that we have in the country today is the result of the study and recommendations made by the Santhanam Committee in Parliament and consists of the CBI, the Central Vigilance Commission and the Vigilance mechanism in central government departments, and the

¹² Commission of Inquiry into Possible Illegal Activities and Associated Police Misconduct (The Fitzgerald Report), Queensland, 1989, p.126

¹³ The Kautiliya Arthashastra, 2.8.22, 2.8.31-32

¹⁴ <http://www.indiastudychannel.com/resources/136484-Corruption-Bribery-Ancient-India.aspx>, viewed on 1 August, 2011



Directorates of Vigilance and Anti-corruption in the states.¹⁵ The sixties, seventies and early eighties saw this anticorruption infrastructure perform with a certain degree of professionalism, though the scale of corruption was yet to reach the heights that it has achieved today. Indian Penal Code recognized the need of provision to tackle the corruption in 1947, this saw the birth of the Prevention of Corruption Act of 1947. This law was later, in 1988, made more comprehensive.

Efforts have been made by different governments to combat and tackle corruption in India. Several committees and commissions have been set up in the post-independent period, viz, Anti Corruption Bureau, Central Bureau of Investigation, Central Vigilance Commission, Citizens charter, and the Office of the Controller & Auditor General (C&AG), and the Chief Information Commission (CIC). Further several formulating Acts of corruption in India have been formulated to combat corruption i.e., Prevention of Corruption Act 1988, Prevention of Money Laundering Act 2002 (amended in 2005), Right to Information Act (RTI).

All these institutions and laws are expected to function as watchdogs against corruption. Of late this mechanism seems to have become voiceless and to fail to secure nation and its growth and curb the corruption. This led to erosion of trust in the formal institutions to curb corruption. The vacuum left by the formal institutions in this regard has been occupied by the civil society organizations in the recent times.

IV. Rise of Civil Society as Whistleblowers

Globally, civil society has gained significant ground since the mid-1980s in determining and driving the course of government policies. Today, it has become a *leitmotiv* of anti-corruption discourses (OECD, 2003).¹⁶ The notion of 'civil society' has become an attractive to many groups, including politicians, scholars, advocacy and non-governmental organizations. This sector is viewed by these groups as a dynamic and

¹⁵ Raju. Radha Vinod, (2010) Institute of Peace and Conflict Studies (IPCS) Issue, No150, December, 2010

¹⁶ Fighting Corruption: What Role For Civil Society? The Experience Of The OECD, Organization For Economic Co-Operation And Development, p.1 (2003)



innovative source for raising new concerns as well as articulating new directions.

Larry Diamond in his pioneering work *"Deepening Democracy"* wrote that civil society is required for a good functioning of democracy. Success of democracy depends on the engagement of civil society organisations in the governing process. Besides this, the administration has to rely heavily on them for implementing various development programmes. Lamin Aminata Kelly (2006) referred civil society to as all institutions and organizations outside government in the context of welfare. It includes trade unions, consumer organizations, the formal and informal welfare sectors, non-government organizations and community based, religious organizations delivering welfare services, corporate social investment that is not private, employee assistance Programme, occupational social work and social workers in organized practice whether as individual or collective.¹⁷

Of late the CSOs enjoy a position as whistleblowers in the fight against corruption across the globe. Civil society provides different perspectives on corruption so as to design a strategy to combat corruption and increase its chances of success. Art 13 of United Nations Convention against Corruption, 2003 provides for encouraging the participation of the civil society in fighting the scourge of corruption.¹⁸ Originally taken from the sports, the concept of 'Whistle blowing' is widely used in the social science literature. As a referee in sports ensure the adherence of the game rules and regulations by the players the whistleblowers in the society attempt to correct the organizational wrongdoings through the disclosure of information. They try to fight against unlawful and unethical and immoral conduct in governmental and business organizations to an authority figure. Thus whistle blowing has gained recognition internationally as an effective tool in their fight against fraud, corruption, maladministration and malpractices.

A whistleblower is someone who speaks out in the public interest.¹⁹ The whistle blowers may be the private individuals or public officials in the

¹⁷ Lamin. Aminata Kelly. (2006). The Role of Civil Society in Preventing and Curbing Corruption: Promoting Greater Transparency and Accountability, Workshop 3.2 Anti-corruption practices in Non-Renewable Natural Resources for Sustainable Human Development, Thursday 16 November, 2006

¹⁸ United Nations Office on Drugs and Crime, 2004, United Nations Convention against Corruption, United Nations, New York, p. 15.

¹⁹ Alford, C. F. (2001) Whistleblowers: Broken Lives and Organizational Power, Ithaca, NY, Cornell University press.



organization or outside the organization. They include direct employees of Companies, employees of governments or agencies like officials, politicians, and or companies, aid worker employed by foreign government, NGO employees. It may include the employees of multilateral agencies e.g.; World Bank, accountants and auditors, consultants, academic researchers, common public and the media.²⁰

Whistle-blowing is justified on moral grounds. All employees have the moral duty to the public safety that must supersede loyalty to their organization. They voice out their concerns for the sake of fellow employees in terms of safety and health considerations, and also for the sake of the company wishing to maintain its public image and do the right thing. Whistle-blowing is often justified to champion the right to have freedom of speech, to champion public's right to information and to recognize public's right to participate in important decisions concerning public interest. Thus the actions of whistleblowers are potentially advantageous to society in ensuring transparency and accountability in administration.

V. Civil Society and Anti-Corruption Movement: RTI Act

The recent Arab uprising is effect of active civil society in that country. Similarly in India, the civil society (largely middle class) has united against the increasing corruption. India enjoys a vigorous and vibrant civil society and one of the freest media in South Asia.²¹ Nowadays both are playing a central role in confronting the corruption in India.

The Mazdoor Kissan Sangathan (MKSS) was the first organized civil society movement in India to campaigning for access to information, officially launched on May 1, 1990, in the state of Rajasthan, with the support of farmers and workers, most of whom are impecunious and illiterate. Under the slogan "Our Money, Our Accounts," collective action undertaken by MKSS, started staging protests, public marches, rallies, sit-ins, and hunger strikes in the villages to demand fair working conditions and minimum wages for daily workers and farmers that were promised under the government-sponsored drought relief and rural development work programs, through these activities they could

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<http://siteresources.worldbank.org/INTLAWJUSTINST/Resources/WhistleBlowerTUA C.pdf>,

²¹ <http://www.transparency.org>, viewed on 29 July, 2011



able to reach state and national leaders with the help of media. At last, this led to Rajasthan government authorities consenting to release the information requested by the villagers.²² In the second half of the 1990s, the MKSS campaign center of attention on the importance of the right to information as a tool to empower poor people in the fight for their rights and organized several public meetings under the slogan of "The Right to Know, the Right to Live," to demand a law that would functionalize their right to information. The process of Right to Information Act started in 1995 to make draft and finally approved in 2000.²³

In 2004, the UPA government, led by the Congress Party headed by Mrs. Sonia Gandhi, published the "National Common Minimum Programme (CMP)," in which it promised that "the RTI Act will be made more progressive, participatory and meaningful."²⁴ For the implementation of the CMP, the central government appointed the National Advisory Council (NAC), which was acted as an interface between the government and civil society in the discussion on access to information legislation. In August 2004, after a series of suggested amendments to the RTI Act of 2002 to the NAC, the considerably amended bill was approved by both Houses of Parliament in May 2005, and the law entered into force fully on October 12, 2005.²⁵

Reports show that since its implementation, the RTI Act has been used effectively to fight mismanagement and corruption and to improve general government responsiveness to development concerns.²⁶ For example, case of Triveni, an adult literacy teacher from an East Delhi

²²There was a statutory obligation to disclose such information in the laws governing village councils: the Panchayati Raj Act of Rajasthan. The administration had not delivered on this promise.

²³ Neelabh Mishra, "People's Right to Information Movement: Lessons from Rajasthan," 2003 (see <http://data.undp.org.in/hdrc/dis-srs/Rajasthan/Right%20to%20Info.pdf>).

²⁴ UPA government's National Common Minimum Programme, May 2004 (see <http://pmindia.nic.in/cmp.pdf>), viewed on 28 August, 2011

²⁵ Puddephatt. Andrew. (2009), Access to Information working Paper Series, 'Exploring the Role of Civil Society in the Formulation and Adoption of Access to Information Laws: The Cases of Bulgaria, India, Mexico, South Africa, and the United Kingdom', The International Bank for Reconstruction and Development/The World Bank, Washington, pp.23-24

²⁶A Roberts 'A Great and Revolutionary Law? The First Four Years of India's Right to Information Act' (2010) Suffolk University Law School Research Paper No 10-02 and forthcoming in 70(6) Public Administration Review pp.1-2



slum, who earns Rs. 400/- per month and holds ration card denied giving ration as card entitles 5kg of wheat at 2 rupees per kilo and 10kg of rice at 3 rupees per kilo each week. She was forced to pay market prices of 13 and 15 rupees per kilo for wheat and rice respectively, a significant drain on her income and quality of life.²⁷ With the support of Delhi-based NGO Parivartan, Triveni filed an RTI application to request a copy of her records from the Department of Food and Supply (DFS).²⁸ She is literate and always signs her name on documents found in the receipts which she received indicated that she had received 25kg of both rice and wheat at ration prices each month, a thumb impression printed on the paperwork to indicate her consent. Triveni. When confronted, the shop owner who had denied Triveni her rations immediately offered Triveni both 20,000 rupees and six months of free ration to remain silent. Triveni refused to take the money and with the assistance of Parivarthan, went public with her story.²⁹ Stories such as Triveni's, and there are many, highlight the usefulness of RTI legislation in providing the people with a mechanism to combat transparency issues in government development programs, showcasing RTI's immense potential to expose corruption where it occurs.³⁰

Though the RTI Act offers significant hope towards eliminating the harmful effects of corruption on development, there are many difficulties associated in RTI as well particularly in implantation, application, and even in to move it into the rural areas. A lack of awareness about rights, particularly among marginalized groups is a key barrier to overcoming corruption via the RTI Act in rural areas in India.³¹ In A Robert's study of the RTI Act after four years of implementation, he found that the only 15% percent of the people are aware of the Law, 90% of men from urban middle class constituted RTI application. This study found that it's difficult to file an application

²⁷ R Sehgal 'Triveni Devi and 109 other women vanquish corrupt ration shop dealers' Info Change News & Features (Delhi June 2004) <<http://infochangeindia.org/200406056381/Right-to-Information/Features/Triveni-Devi-and-109-other-women-vanquish-corrupt-ration-shop-dealers.html>>, viewed on 28 July, 2011.

²⁸ *ibid.*

²⁹ *ibid.*

³⁰ <http://corkonlinelawreview.com/editions/2011/03/Sophie-Rushton.pdf>, viewed on 28 July, 2011.

³¹ *ibid* (Roberts)



under RTI act since RTI application must be made to a Public Information Officer (PIO) but, three-quarters of local government offices do not display information about how to contact a PIO and that PIOs themselves are reported as unfriendly and unhelpful.³² RTI Assessment and Analysis Group survey in 2009 found that the 40% of the rural people says that utilizing the RTI Act was harassment and threats from officials, applicants experiencing intimidation, threats and even physical violence on lodgments or submission of an application.³³ Administrative barriers such as record-keeping, lack of computers and photocopiers, lack of training and lack of enthusiasm of staff can also be the reason of the failing the RTI Act.³⁴ There are many barriers between India's poor and access to the 'information revolution' supposed by the RTI Act. However, Roberts concludes his survey of the Act's implementation by recalling that within this short time in which to achieve substantial overhaul of the entire Indian public sector and despite its pitfalls, RTI continues to represent a positive way forward. The Prevention of Corruption Act (Andhra Pradesh), 2009 drafted by the President of Loksatta party, Dr. Jayaprakash Narayan submitted to Honorable Speaker of A P Sri N Kiran Kumar Reddy (2009) and former Chief Minister Dr. Y S Raja Sekhar Reddy on 9 June, 2009, to introduce it during budget session of the legislative Assembly, which is aimed at amending the Prevention of Corruption Act, 1988 in so far as it applies to Andhra Pradesh, and to empower institutions to function independently, to eradicate corruption, seize and attach property or assets during investigation, and prosecute wrong doers without undue delays, in furtherance of justice, equity and good conscience which says that we need is political will, systemic improvement and relentless and assured application of law to reduce corruption.³⁵ He mainly focused on few issues to combat corruption in our state, to make the Act it more effective as on the following lines: i) Facilitate seizure and forfeiture of property of corrupt public servants ii) Establish special anti-corruption courts in each district iii) Appoint independent prosecutors drawn from judiciary iv) Establish an independent anti-

³² *ibid*(Roberts)

³³ <http://corkonlinelawreview.com/editions/2011/03/Sophie-Rushton.pdf>, viewed on 28 July, 2011.

³⁴ *ibid* (Roberts)

³⁵ <http://www.loksatta.org/cms/documents/advocacy/corruption.pdf>, pp. 1-17, vied on 27 July, 2011.



corruption agency functioning under the overall supervision of Lokayukta v) Presumption of guilt on public servants in case of disproportionate assets and those who are caught red-handed while accepting bribe.

In this process of tackling corruption the civil society members and media persons are being harassed. In the case of journalists, though freedom of the press is guaranteed by the constitution, the Official Secrets Act has been used by the government in the past to censor articles or prosecute journalists, although this practice seems to be on the decline. The raise of CSOs as whistleblowers is met with stiff resistance by the affected parties, may it be politicians, businessmen or anti-social elements.

Of late it has become a trend to attack on social activists; for instance; on 6 August, 2011 in Bhopal a women RTI activist Shehla Masood and supporter of Anna Hazare's anti- corruption shot dead. Ms. Masood had told authorities and she had given complaint in the city's Maharana Pratap Nagar Police Station in 2008, in that she said that "feared for her life" from senior police chiefs of the State.³⁶ Jyotirmoy Dey, crime and investigations editor for *MID DAY* (a tabloid newspaper published in several cities in India) shot dead on 11 June 2011 by gangsters in Mumbai. Satish Shetty a whistle blower Right to Information RTI activist was stabbed to death for exposing many land scams in Maharashtra.³⁷ Satyendranath Dubey and Manjunath Shanmugam were killed while trying to expose the corruption in petroleum marketing.³⁸ Also Swami Nigamana nd who went on a hunger strike in February to protest against illegal mining in northern Uttarakhand state died on June 14, Tuesday, 2011.³⁹ This brings to the issue of absence of any legal mechanism to protect the whistleblowers.

State Vs Civil Society

In the majority of corruption cases, accused are influential, and are able to command the best legal brains to assist them in courts. Even during investigation of cases, their lawyers try to stall proceedings through

³⁶ The Hindu, Daily Newspaper in India, viewed on 6 August, 2011

³⁷ www.thehindu.com/news/article80222.ece, 13 January, 2010, viewed on 28 July, 2011

³⁸ <http://whistleblowers.wordpress.com/>, viewed on 28 July, 2011

³⁹ BBC NEWS South Asia, on June 15, 2011; <http://www.bbc.co.uk/news/world-south-asia-13773208>



stays, and other interlocutory petitions, resulting in delays. Trials of corruption cases get bogged down in courts on various grounds.⁴⁰ So the turn comes to civil society. Then the whistleblowers and civil society must become watchdogs against corruption and play a significant role to hold back this anti-public activity.

Lokpall bill was first introduced by member of team Anna Prashant Bhushan in 1968, passed in 4th Lok Sabha in 1969, but blocked in Rajya Sabha, the upper house of the Indian Parliament. Later, continuously re-introduced in 1971, 1977, 1985, 1989, 1996, 1998, 2001, 2005 and in 2008, but none of them passed.⁴¹ The Bill was blacked out from the media and hence very few people knew about it. It never became law because it was not moved in the Lok Sabha. Tussle over including the PM under the ambit of Lokpall After Harare's fasting a big question raised that whether Prime Minister should be included or not, DMK (Tamil Nadu), TDP (Andhra Pradesh), BJP and team of Hazare (Civil Society) supports that PM should be under Lokpall. On the other hand However, Trinamool Congress leader and West Bengal Chief Minister Mamata Banerjee, The Nationalist Congress Party (NCP), represented by Union Minister Praful Patel — as Union Agriculture Minister Sharad Pawar backed the Congress and PM and West Bengal Chief Minister Mamata Banerjee said including Prime Minister in the Bill would not end corruption and slammed the civil society groups.⁴²

Hazare regarded as a rare Gandhian is waging a protest against state's corruption labeled as 'second independence' movement. On the other hand the government employees accuse him of trying to undermine the government at the behest of opposition parties — accusations they reject. Yet many Indians sympathetic to Mr. Hazare's cause are less enthusiastic about his methods and worry that theatrical demonstrations and hunger strikes undermine democratic values. The home minister, Chidambaram, denied on Tuesday that the government itself was undermining democratic rights by detaining protesters. In June, the government was criticized for an early morning police crackdown against followers of another anticorruption protester, the yoga guru Baba Ramdev.

⁴⁰ Raju. Radha Vinod, (2010) IPCS Issue, No150, December, 2010

⁴¹ http://articles.timesofindia.indiatimes.com/2011-04-06/mumbai/29387852_1_lokpal-bill-chief-justice-ombudsman, viewed on 25 July, 2011

⁴² The Hindu, 22 June, 2011.



India has ratified the UN Convention on against Corruption in May 2011; five years after the Convention came into existence⁴³. This is after the pressures put on the UPA Government to recover the assets from the corrupt people.

VI. Legal Protection to Whistleblowers

It is clear that any attempt to ensure sound governmental financial management and reduce fraud, corruption, and maladministration and to insist on observing prudence, transparency and accountability, through whistles blowing, by the citizens, has to be supported by measures to protect whistleblowers against retaliation and victimization. The government, therefore, has important role in ensuring that the citizens exercise their right of effective participation in the fight against corruption by giving them adequate legal protection.⁴⁴

Protecting whistleblowers can be considered as the next big step towards raising the standards of corporate and public sector governance. When whistle blowers raised voice up against immoral organizations and managers, the law must protect them. For instance, whistleblowers must be able to continue their career after blowing the whistle. Employees should be able to voice out to concern about their employees' wrongdoings and misbehaviours so that appropriate action can be taken against the culprits. Whistle blowers argument must be related to the interest of the society and its main objective is to blow the whistle is moral-driven and not for personnel gain.

VII. Protection to whistleblowers: International Experience

In Asian countries, employees are devoted to their paymasters. Any unhappiness is expressed in closed-doors rather than declaring them openly in the public domain.⁴⁵ It is not uncommon to expect the retaliation in response to the pro-active role played by the whistle blowers. Recently in India the whistleblowers are attacked for their active role. Therefore there is a need to provide wider protection to these people. Globally, appropriate legislations are being put in place to

⁴³ <http://www.thehindu.com>, viewed on 17 August, 2011.

⁴⁴ Dandago K.I. (2009) 'Combating Corruption in Africa: The Role of Whistle Blowers', DSM Business Review v Vol. 1, No. 1 (June, 2009)

⁴⁵ <http://choonyin.tripod.com/whistleblowing/>



protect the whistle-blowers, particularly in western countries. It is part of their culture to demand greater freedom of speech. This section provides with the protective measures in favor of whistle blowers in different countries.

The U.S. Whistleblowers Protect Act of 1989 (amended in 1994) protects public interest disclosures by federal employees. An Office of Special Counsel (OSC) was created to aid whistleblowers in the investigation of their disclosures and prevention of retaliatory action against them.⁴⁶ After the spectacular collapse of Enron and World Com, U.S. Congress passed the Sarbanes-Oxley Act of 2002 granting sweeping legal protection to whistleblowers in publicly traded companies. Anyone retaliating against a corporate whistleblower can now be imprisoned for up to 10 years. The Department of Labour (DoL)⁴⁷ is required to complete its adjudication of whistleblower cases within 180 days, failing which the whistleblower may either elect to stay with DoL or seek a *de novo* trial in court. Remedies include reinstatement, back pay with interest, compensatory damages, special damages, attorney fees and costs.

In UK, Public Interest Disclosure Act, 1998 provides protection against the employers in the organization. This law applies to both public and private organizations from the discrimination or from the dismissal from the job due to disclosing the truth. In UK the whistle-blowers may use three different routes to deliver their information: internal procedures of company or public authority; approaching public agencies (like as regulators, public auditors, or in a global context the World Bank), and other outlets; the media to publicize an issue.⁴⁸

VIII. Remedies

Responsiveness, accountability and transparency are a must for a clean system. Bureaucracy, the backbone of good governance, should be made more citizens friendly, accountable, ethical and transparent.⁴⁹ If all the three concepts are properly observed in public policy management,

⁴⁶ <http://whistleblowers.wordpress.com/india-needs-iwpa/>, viewed on 27 July, 2011

⁴⁷ <http://www.acslaw.org/files/Kaplan%20FINAL.pdf>, viewed on 27 July, 2011

⁴⁸ http://siteresources.worldbank.org/INTLAWJUSTINST/Resources/WhistleBlowerTUA_C.pdf, viewed on 27 July, 2011

⁴⁹ <http://upscportal.com/civilservices/essay/An-Essay-Corruption-in-India>, viewed on 27 July, 2011



there would be no cases of mismanagement of public funds or any illegal/immoral acts in governance and, so, the continent would be fraud-free!

Klitgaard argues that setting up new mechanisms of citizen oversight of government projects, including their design, evaluation, and audit can reduce the extent of corruption.⁵⁰ Civil society and NGOs in like India face enormous challenges in their work on the diamond sector including threats, warning and terrorize on their life, but it must be more effective and challenge the anti-public activity to destroy this where it has constructed a big room of corruption.

Organization for Economic Co-operation and Development's⁵¹ advised to strengthening the role of civil society to fight against corruption:

- To encourage an institutional environment conducive to the development of civil society and to its participation in public affairs;
- To promote the co-operation of public and civil society actors in anti-corruption efforts;
- To encourage a broad mobilization against corruption; and
- To strengthen the capacities of civil society organizations.

To strengthen the capacities of civil society organizations; Strengthening the capacities of civil society organizations means to:⁵²

- Provide these organizations with information and expertise;
- Support training programmes;
- Contribute to the raising of funds; and
- Encourage partnerships between civil society actors

There must be a pressure from civil society to make certain regulatory measures and policies in legislature and it must become part in policy making as well. Facilitating training for the common citizens to learn how to use these rules, acts, and regulatory against corruption. For instance; train up the people to file RTI. Civil society must make a platform for people's welfare and their rights with increased knowledge on laws, policies and issues related to the corruption and also strategies to tackle it.

⁵⁰ Klitgaard, R., (1998). 'Corruption: Beyond Shame, Apathy, Futility', paper presented at the book launch of Membasmi Korupsi, Jakarta, 17 September.

⁵¹ <http://www.oecd.org/dataoecd/8/2/19567549.pdf>, viewed on 17 July, 2011

⁵² *ibid*



IX. Conclusion

As far back as 1979, Justice V.R. Krishna Iyer observed in a judgment in his inimitable style: "Fearless investigation is a 'sine qua non' of exposure of delinquent 'greats' and if the investigative agencies tremble to probe or make public the felonies of high office, white-collar offenders in the peaks may be unruffled by the law. An independent investigative agency to be set in motion by any responsible citizen is a desideratum."⁵³ In this context, it is nothing but 'a good Lokpall Bill.' Corruption is so deeply entrenched in the system that most people regard corruption as inevitable and any effort to fight it as futile. This cynicism is spreading so fast that it bodes ill for our democratic system itself. Clearly, the role of civil society in India extends beyond advocating for the right to information. Right to information act is an instrumental tool for the achievement of socio-economic rights of the people and as a deterrent against the rampant corruption operating at all level of society. But, if RTI fails to tackle the issue of corruption, who has to be on the scene of theatre? Answer is utterly Civil Society. If these members (so-called whistle blowers) have been attacking, harassing and killing by culprits of India, then, whom have they have to meet? What should have they do? Certainly, government should immediately make sure to pass the bill of Jan Lokpall to tackle corruption and pass the bill of Whistle Blowers Protection Act in the Indian Parliament. Until pass these two Bills in Parliament, it won't stop.

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THEORY OF SYMBOLISM: AN INVESTIGATION ON THE ADOLESCENT BOYS AND GIRLS OF BURDWAN DISTRICT, WEST BENGAL, INDIA

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I. Introduction :

It has been well known from the ancient Greek and Roman writings that round shapes represent the female organs and pointed shapes represent the male organs. In Medieval English writings, the Church steeples and similar structure, have been used as similar symbols (Eysenck, 1972). Freudian analysis of dreams give us innumerable symbols that represent not only the male and female genitals, but organs like breasts and phenomena or acts like birth, sexual gratification etc. The theory which is often ascribed as Freudian theory claims that males prefer female shapes, while females prefer male shapes. Freud believed in the universality of symbols and that can be used in the sex interpretation. Distasteful images in the form of symbols can be associated by shape, action, colour, number, quality, status, sound etc. Some notable examples are as follows :

- Vagina-circular objects i.e. jewellery
- Penis and Testicles-oblong objects
- Castration-an action that separates the part
- Coitus-an action that resembles sexual behaviour(riding on a running horse)

From the above findings, it is very difficult to ascertain the validity of the sexual symbolism as a true theory. This Freudian analysis prompted the present investigators to undertake this investigation with

a view to find out whether sexual symbolism holds true in case of our adolescent school children.

II. Review of related literature :

McElroy's (1954) study on Scottish children and Johada's (1956) investigation on Ghanarian children supported the Freudian theory of symbolism. Kline(1972) considered these findings as evidence in favour of this theory. The preference of a male or a female for symbols of it's own sex was explained by Eysenck and Wilson (1973) who observed that "when presented with symbolic representations of male and female genitals, it is open to the individual-male or female subject to react with 'liking' in either ways :

he/she may prefer the symbol representation of his/her own type of genital;

Or he/she may prefer the symbol representation of the opposite sex type of genital"

On the other hand, the findings of Eysenck and Soueif (1972) on 451 male and 445 female Egyptian students, could not lend support to the theory. They suggested that shapes of any kind, in order to be symbolic of sexual parts, require a special setting(eg. in the theatre or at a party) in the absence of which shapes are not interpreted symbolically. They used various polygons, elongated and pointed ones as male symbols, and round or circular ones as female symbols.

Hollan (2009) studied the relationship between symbols and nightmare.

III. Methodology of the study :

Previous investigators have used polygons of various shapes to symbolize male and female sex organs. In the present investigation, the investigators have tried to select various objects involved in various activities in daily life. These objects are categorised as follows :

- Elongated and pointed – it symbolizes the male organ.
- Circular, round, grooved, depressed or rectangular – it symbolizes various female components.

A number of these identical symbols have been referred to by Freud in his psychoanalysis of dreams. Altogether, 12 such sets were prepared with symbolic objects representing the male-female components. The study was conducted on a sample of 100 boys and 100 girls of 14 years of age studying in class VIII of six schools in urban area of district. The students belong to two boys' school and two girls' school respectively of Durgapur town in Burdwan district, West Bengal, India.

A questionnaire was prepared which consists of drawings of various objects representing symbols. In each of the 12 sets of items, there were drawings of 2 male symbols (♂) and 2 female symbols (♀) linearly arranged in various orders. The types of symbols representing objects in each set of item are listed as follows :

Table 1 : 12 set of male symbols (♂) and female symbols (♀) with different objects

Serial number	Set	Objects	
		Male symbol (♂)	Female symbol (♀)
1	Ornaments	Pointed pendent, arrow shaped ear ring	Bangle, ring
2	Games	Hockey stick, cricket bat	Basket
3	Sports	Javelin, arrow	Discus, shot-put
4	Vegetables	Ladies finger, ribbed-gourd	Cabbage, bottle gourd
5	Fruits	Banana, cucumber	Apple, orange
6	Vessels	Mast of a ship, oar	Life boat, country boat
7	Lamps	Candle stick(lighted),	Electric bulb, oil



		burning torch(mashal)	lamp (pradeep)
8	Various geometric figures	Elongated, pointed	Circular, oval
9	Arms and weapons	Dagger, revolver	Round shield (dhal), hand grenade
10	Crockery, cutlery	Spoon, fork	Cup, jug
11	Constructions	Plain brick house, light house	Dome-shaped house, house with steeple
12	Animals	Snake, Eel fish	Snail, jelly fish

The questionnaire was presented before the students and they were asked to put a tick mark against only one single object which he/she preferred most in each of the 12 sets. The obtained data was analysed statistically through testing of the following hypotheses :

Hypothesis 1 :

There is no significant difference between boys preferring male symbols and boys preferring female symbols.

Hypothesis 2:

There is no significant difference between girls preferring male symbols and girls preferring female symbols.

Hypothesis 3 :

There is no significant difference between choice of opposite sex symbols among boys and girls.

Hypothesis 4:

There is no significant difference between choice of same sex symbols among boys and girls.



IV. Result and discussion :

(i) Analysis and interpretation of data and result :

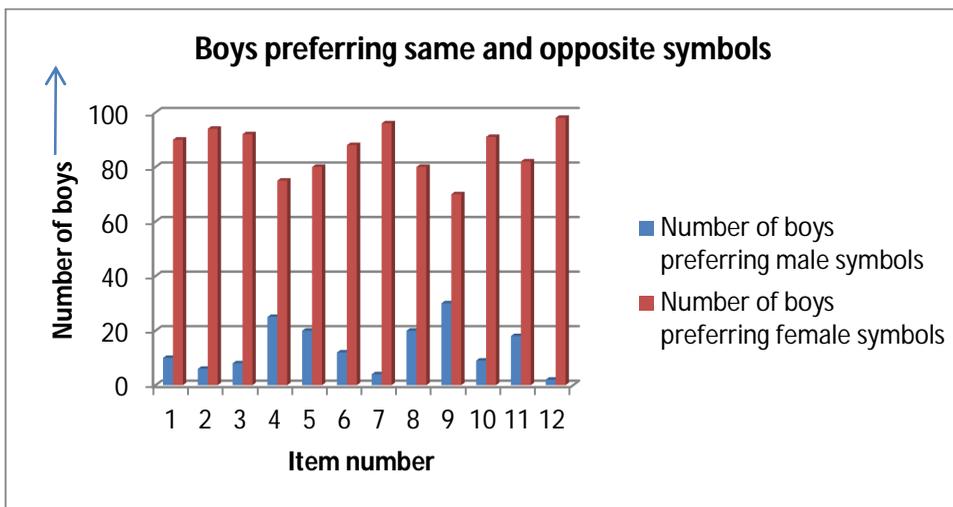
The obtained data is represented in the following tables :

Table 2 : Preference of male and female symbols by 100 boys and 100 girls

Item number	Number of boys preferring the symbol		Number of girls preferring the symbol	
	Male symbol (♂)	Female symbol (♀)	Male symbol (♂)	Female symbol (♀)
1	10	90	98	02
2	06	94	86	14
3	08	92	85	15
4	25	75	78	22
5	20	80	90	10
6	12	88	82	18
7	04	96	86	14
8	20	80	88	12
9	30	70	92	08
10	09	91	88	12
11	18	82	94	06
12	02	98	80	20

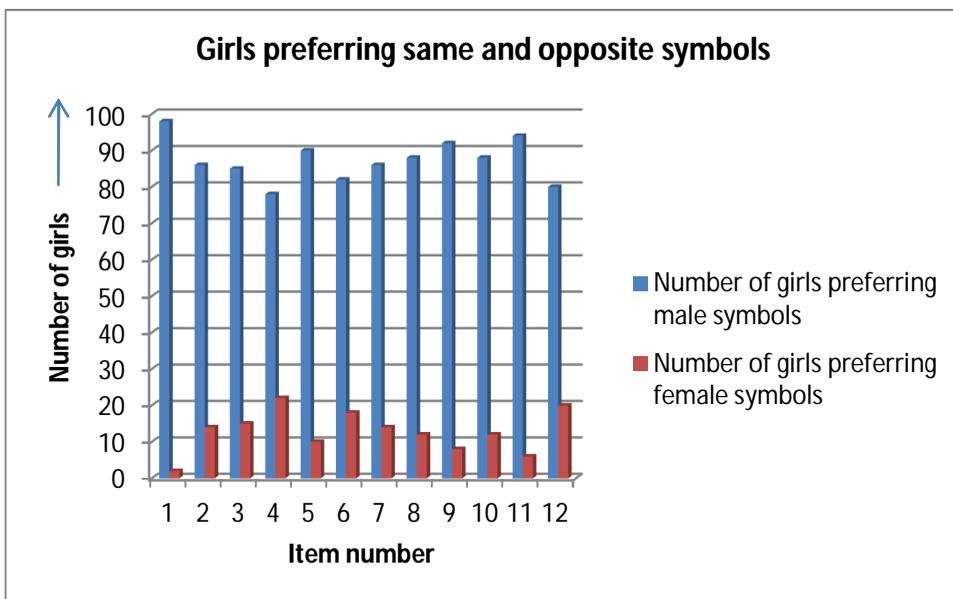
Number of boys preferring male symbols and female symbols are shown in the following bar diagram (A) .

Diagram A



Number of girls preferring male symbols and female symbols are shown in the following bar diagram (B)

Diagram B





From the above data and it's graphical presentation, it is found that 13.66 % of boys prefer male symbols (same sex symbols) and 86.33 % boys prefer female symbols (opposite sex symbols). Thus., it can be said that boys have a natural tendency of preferring female symbols more than male symbols i.e. a significant difference exists between boys preferring male symbols and boys preferring female symbols. So, hypothesis 1 is rejected.

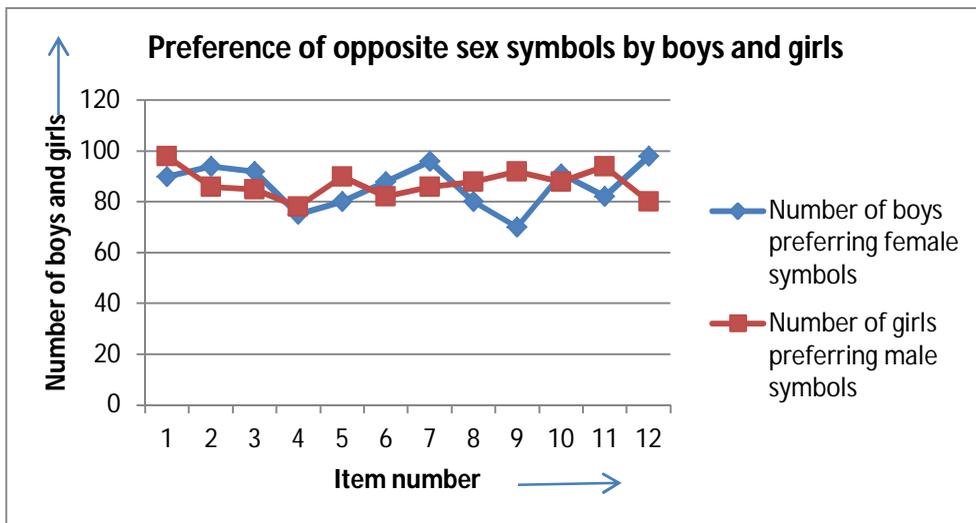
From the above data and it's graphical presentation, it is found that 87.25% girls prefer male symbols (opposite sex symbols) and 12.75 % girls prefer female symbols (same sex symbols). Thus., it can be said that girls have a natural tendency of preferring male symbols more than female symbols i.e. a significant difference exists between girls preferring male symbols and girls preferring female symbols. So, hypothesis 2 is rejected.

Table 3 : Preference of opposite sex symbols by boys and girls

Item number	Choice : opposite sex symbols		Choice : same sex symbols	
	Boys	Girls	Boys	Girls
	Female symbol (♀)	Male symbol (♂)	Male symbol (♂)	Female symbol (♀)
1	90	98	10	02
2	94	86	06	14
3	92	85	08	15
4	75	78	25	22
5	80	90	20	10
6	88	82	12	18
7	96	86	04	14
8	80	88	20	12
9	70	92	30	08
10	91	88	09	12
11	82	94	18	06
12	98	80	02	20

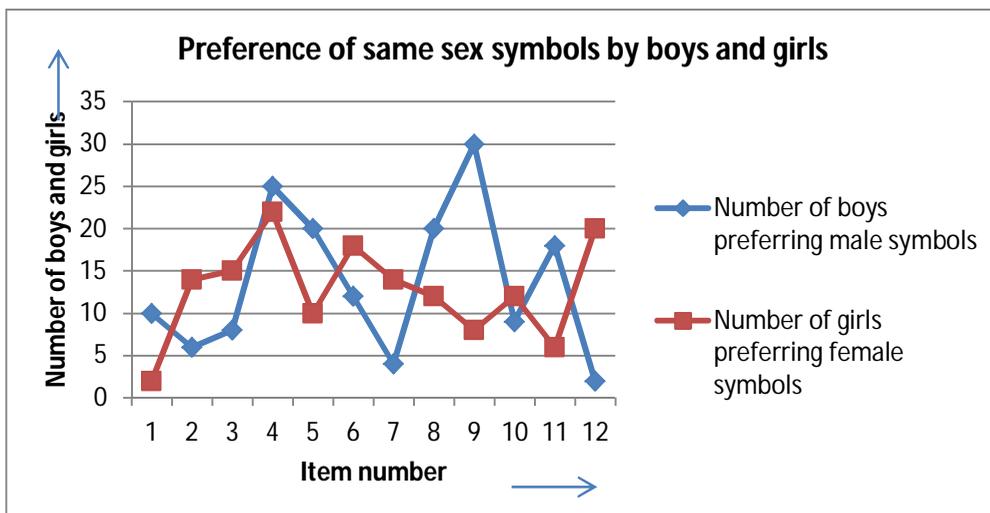
Number of boys and girls preferring opposite sex symbols are represented on the following line diagram (C).

Diagram C



Number of boys and girls preferring same sex symbols are represented on the following line diagram (D)

Diagram D





From the above data and its graphical presentation, it is found that opposite sex symbol is preferred by 86.33% boys and 87.25% girls. Thus almost no significant difference exists choice of opposite sex symbols among boys and girls. Hence, hypothesis 3 is accepted.

From the above data and its graphical presentation, it is found that same sex symbol is preferred by only 13.66% boys and 12.75% girls. Thus almost no significant difference exists between choice of same sex symbols among boys and girls. Hence, hypothesis 4 is accepted.

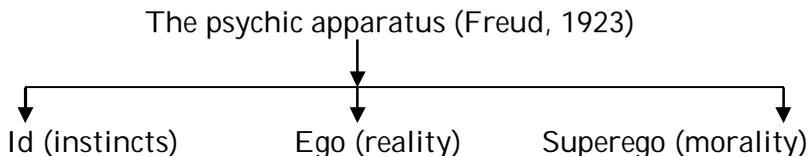
Thus, it can be concluded that the result of this kind of investigation satisfies validity of Freudian theory of symbolism.

(ii) Discussion :

Though symbolism theory is widely recognized, many practical symbolic investigation have reported that students encounter great difficulties in comprehending the theoretical concepts and related principles of Biology with theories of symbolism. The investigation is carried on following simplicity of ideas. The entire samples of boys as well as girls reveal significant differences in their preferences of particular sex symbols. It is found that preference of opposite sex symbols by boys and girls are highly significant. Boys prefer male symbols and girls prefer female symbols which follows the Freudian symbolism theory. The present findings highly agree with the findings of McElroy's (1954) and Jahoda (1956). The present investigation also reveals that sexual stimulation (preconditioning) plays a vital role in the preference of various symbolic representation of the genitals or other components.

Freud believed that children are born with libido or a sexual (pleasure) urge. There are a number of stages of childhood during which the child seeks pleasure from different 'objects'. Freud (1900 to 1905) developed a topographical model of the mind, where he described

the features of mind's structure and function. According to Freud (1923), the psychic apparatus consists of the following components:



According to Langer, "the human brain is constantly carrying on a process of symbolic transformation of the experiential data that comes to it." Eliade (1970) explained "symbol as unconsciously produced substitute." According to Todorov (1980) 'symbol is a kind of sign' and 'symbols are vehicles of indirect expressions'.

The present study is thus conducted by the investigators to study the effectiveness of Freudian symbolism theory through analysis of boys' and girls' preferences of same/opposite sex symbols. This kind of study also reflects a person's attitude towards sexual development, which is an important component of human personality.

Psychoanalytic thought has grown in many directions. But Freud's rigidity in emphasizing the role of biological forces (i.e. the libidinal energies) in determining behaviour is considered as orthodox. According to neo-Freudian thoughts socio-cultural forces is also an important determinant of behaviour.

Some notable scientists like K. Horney, Eric Fromm, H.S. Sullivan and E. Erickson deviated from Freud's analysis of theory. Though they pulled down most of the theories of Freud, at the same time, they also accepted some Freudian concepts related to 'needs', 'tension', 'anxiety', 'unconsciousness', 'motivation', 'defence mechanism' and 'dream interpretations'. So, theory of symbolism is still now relevant and contributes a lot in understanding adolescent psychology.



Though some of Freud's theories are criticised, it cannot be denied that he is one of the great modern thinkers. His stimulating and compelling thinking process has served as a source of inspiration for further studies and researches related to human behaviour.

V. Implication of the study :

Sigmund Freud, the founder of the school of psychoanalysis, believed that sex motive is the most important and comprehensive form of stimulation. A normal development of human personality requires essentially that a person's sexual development should be quite normal. Otherwise, abnormal development can be the cause of many mental diseases and illness. Sexual adjustment during adolescence is very essential, and for this, sex education is desirable. The extent to which a normal personality can develop in some particular culture depends upon the extent to which normal expression to human tendencies is permitted in its environment.

VI. Delimitation of the study :

This preliminary study has generated some interesting findings related to the theory of symbolism. The present investigation is done using small size of sample in a specific area and further extensive work is needed with more symbols of various other types in order to obtain more fruitful results. Clear patterns of verification of the theory of symbolism can be delineated from more in-depth studies.

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A STUDY OF THE ENVIRONMENT AWARENESS AMONG PRIMARY SCHOOL TEACHERS IN RELATION TO THEIR GENDER, SCHOOL TYPE IN NAINITAL DISTRICT

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INTRODUCTION:-

The environmental education is the lifetime process for the benefit of mankind and the development of the public. It develops the awareness, skills and solves the problem to improve the quality of environment. The area of teacher Education is different from social science because they are restricted to awareness only.

Teachers can keep students in hands-on, active learning that increase their knowledge and awareness about the environment. They will understand the need of a strong environment for themselves and for others. They will be awake of the activates by which they could protect their natural resources and will keep clean air, water and places .Because environmental education encourages query and investigation, teachers can develop among the students serious thinking, problem solving, and effective decision-making skills. Environmentally aware students become citizens who are able to consider various sides of an environmental issue and make responsible decisions as individuals and as members of their community.

This environmental education enables children to discover and protect the environment naturally reaching understanding in their own approach. The most important purpose of environmental education in



schools is to explain and sensitize the young minds to the environmental problems and concerns. Teachers are to pound in students healthy personal and social attitude and behavior towards environment. Thus, teachers must have awareness about environment and the problems connected with it so that they can play their function very effectively. Hence, it is necessary to know how far the primary school teachers are aware about environment and environmental problems. Environment is a global concept today. Environmental education is an approach to learning and not a subject of study. It endeavors to create a way of thinking requiring people to overcome prejudices. Environment education helps in programming learning experiences ranging from the simple to the complex. The principle of environmental education is that it makes the child's education problem-based for understanding the environment and the hazards of pollution. The environmental education curriculum is socially relevant as it how unchecked and unplanned development pollutes air, water, and soil, thereby threatening our subsistence and existence.

OPERATIONAL DEFINITIONS OF KEY TERMS:

Environment Awareness

Environment Awareness may be defined as to help the social group and individual to gain a variety of experiences in and acquire a basic understanding of environment and its associated problems.

Primary school teachers

Primary school teachers also known as national school teachers are involved in the social, intellectual physical and moral development of pupils in their class. A teacher works with one single class for an entire academic year and is responsible for teaching a wide range of subjects on the National Curriculum. Depending on school size, teachers may have responsibility for more than one curriculum class group and as such will have to divide their time, presenting different material



different subjects to students at different levels within a single classroom.

Objective of the study:-

- To find out and compare the environment awareness between Male and Female at Primary school teachers.

Hypotheses of study:-

1-There is no significant difference in mean scores of environment awareness between male and female primary school teachers.

2-There is no significant difference in mean scores of forest including trees awareness between male and female primary school teachers.

3-There is no significant difference in mean scores of pollution awareness between male and female primary school teachers.

4-There is no significant difference in mean scores of energy conservation between male and female primary school teachers.

5-There is no significant difference in mean scores of wildlife and animals awareness between male and female primary school teachers.

6-There is no significant difference in mean scores of environment and related problems of environment awareness between male and female primary school teachers.

7-There is no significant difference in mean scores of population awareness between male and female primary school teachers.

8-There is no significant difference in mean scores of teaching skills of EE between male and female primary school teachers.

Methodology:-

Keeping in view the research evidence, objects and hypothesis, the research scholar found it suitable to go through descriptive survey method.



Population:-

The scope of the study has been Primary school Teachers only.

Sample :-

120 samples for the study and during the collect data.

Tools:-

ENVIRONMENTAL AWARENESS TEST OF TEACHERS (EATT)

Environmental Awareness Test of Teachers developed by **Dr. SEEMA DHAWAN** will be used to collect information about Primary school teachers.

Statistical Technique:-

The research scholar has been used mean, median, standard deviation, t-test for analysis the data of the study.

ANALYSIS AND INTERPRETATION:-

Ho1:- There is no significant difference in mean scores of environment awareness between male and female primary school teachers.

Table .1

Variable	Gender	N	Mean	S.D.	Df	't' value	Level of significant
Environment Awareness	Male	60	56.1	7.17	118	0.01	Not significant
	Female	60	56.08	5.99			

It is evident from Table.1 that the mean score for environmental awareness of male primary school teachers (M= 56.1) is less than female teachers (M=56.08).

The computed 't' value is 0.01 which is not significant at acceptable level of environment awareness hence, our hypothesis that



"There is no significant difference in mean scores of environment awareness between male and female primary school teachers." is accepted.

Ho.2:- There is no significant difference in mean scores of forest including trees awareness between male and female primary school teachers.

Table .2

Variable	Gender	N	Mean	S.D.	Df	't' value	Level of significant
Environment Awareness	Male	60	8.26	2.00	118	0.57	Not significant
	Female	60	7.68	1.16			

It is clear from Table.2 that the mean score for environmental awareness of male primary school teachers (M= 8.26) is higher than female primary school teachers (M=7.68).

The computed 't' value 0.57 which is not significant at acceptable level of confidence hence, our hypothesis that " There is no significant difference in mean scores of forest including trees awareness between male and female primary school teachers" is accepted.

Ho.3:- There is no significant difference in mean scores of forest pollution awareness between male and female primary school teachers.

Table .3

Variable	Gender	N	Mean	S.D.	Df	't' value	Level of Significant
Environment Awareness	Male	60	17.05	3.07	118	2.34	Significant
	Female	60	18.2	2.36			



It is evident from Table.3 that the mean score for environmental awareness of male primary school teachers (M= 17.05) is less than female teachers (M=18.2).

The computed 't' value is 2.34 which is significant at rejected level of environment awareness hence, our hypothesis that "There is no significant difference in mean scores of pollution awareness between male and female primary school teachers." is rejected.

Ho.4 : There is no significant difference in mean scores of energy conservation between male and female primary school teachers.

Table.4

Variable	Gender	N	Mean	S.D.	Df	't' value	Level of Significant
Environment Awareness	Male	60	4.9	1.28	118	0.70	Not Significant
	Female	60	4.38	5.74			

It is evident from Table.4 that the mean score for environmental awareness of male primary school teachers (M= 4.9) is less than female teachers (M=4.38).

The computed 't' value is 0.70 which is significant at accepted level of environment awareness hence, our hypothesis that "There is no significant difference in mean scores of energy conservation between male and female primary school teachers." is accepted.

Ho 5: There is no significant difference in mean scores of wildlife and animals awareness between male and female primary school teachers.



Table.5

Variable	Gender	N	Mean	S.D.	Df	't' value	Level of Significant
Environment Awareness	Male	60	3.96	1.03	118	0.10	Not Significant
	Female	60	3.98	0.92			

It is evident from Table.5 that the mean score for environmental awareness of male primary school teachers (M= 3.96) is less than female teachers (M=3.98).

The computed 't' value is 0.10 which is not significant at accepted level of environment awareness hence, our hypothesis that "There is no significant difference in mean scores of wildlife and animals awareness between male and female primary school teachers." is accepted.

Ho 6: There is no significant difference in mean scores of environment and related problems of environment awareness between male and female primary school teachers.

Table.6

Variable	Gender	N	Mean	S.D.	Df	't' value	Level of Significant
Environment Awareness	Male	60	17.61	2.83	118	0.07	Not Significant
	Female	60	17.65	3.02			

It is evident from Table.6 that the mean score for environmental awareness of male primary school teachers (M= 17.61) is less than female teachers (M=17.65).

The computed 't' value is 0.07 which is not significant at accepted level of environment awareness hence, our hypothesis that



"There is no significant difference in mean scores of environment and related problems of environment awareness between male and female primary school teachers." is accepted.

Ho 7: There is no significant difference in mean scores of population awareness between male and female primary school teachers.

Table.7

Variable	Gender	N	Mean	S.D.	Df	't' value	Level of Significant
Environment Awareness	Male	60	5.03	1.14	118	0.58	Not Significant
	Female	60	5.13	0.99			

It is evident from Table.7 that the mean score for environmental awareness of male primary school teachers (M= 5.03) is less than female teachers (M=5.13).

The computed 't' value is 0.58 which is not significant at accepted level of environment awareness hence, our hypothesis that "There is no significant difference in mean scores of population awareness between male and female primary school teachers." is accepted.

Ho.8 There is no significant difference in mean scores of teaching skills of EE between male and female primary school teachers.

Table.8

Variable	Gender	N	Mean	S.D.	Df	't' value	Level of Significant
Environment Awareness	Male	60	0.56	0.33	118	2.72	Significant
	Female	60	0.68	0.26			



It is evident from Table.8 that the mean score for environmental awareness of male primary school teachers ($M= 0.56$) is less than female teachers ($M=0.68$).

The computed 't' value is 2.72 which is significant at rejected level of environment awareness hence, our hypothesis that "There is no significant difference in mean scores of teaching skills of EE between male and female primary school teachers." is rejected.

Findings

On the basis of analysis of data the following may be drawn.

1-There is no significant difference in mean scores of environment awareness between male and female primary school teachers.

2-There is no significant difference in mean scores of forest including trees awareness between male and female primary school teachers.

3-There is no significant difference in mean scores of pollution awareness between male and female primary school teachers.

4-There is no significant difference in mean scores of energy conservation between male and female primary school teachers.

5- There is no significant difference in mean scores of wildlife and animals awareness between male and female primary school teachers.

6-There is no significant difference in mean scores of environment and related problems of environment awareness between male and female primary school teachers.

7-There is no significant difference in mean scores of population awareness between male and female primary school teachers.

8- There is no significant difference in mean scores of teaching skills of EE between male and female primary school teachers.



Conclusion

On the basis of the analysis and interpretation of data it may be concluded that environmental awareness scores of government and private male and female teachers of primary schools are more or less same and the difference among their environmental awareness is by chance.

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THE THEORY OF FOREIGN RELATIONS IN HINDU POLITY

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The Hindu thinkers not only analyzed sovereignty with regard to the constituent elements in a single state. They realized also that sovereignty is not complete unless it is external as well as internal, that is, unless the state can exercise its internal authority unobstructed by, and independently of, other states. The conception of "external" *aisvarya* (sovereignty) was well established in the Hindu philosophy of the state.

"Great misery", says Sukra, "comes of dependence on others. There is no greater happiness than that from self-rule". This is one of the maxims of the Sukra-niti¹ bearing on the freedom of the *rastra*, or the land and the people in a state. Kautilya also in his remarks on "foreign rule" expresses the same idea in a negative manner. Under it, we are told in his *Artha-sastra*,² the country is not treated as one's own land, it is impoverished, its wealth carried off, or it is treated "as a commercial article". The description is suggestive of John Stuart Mill's metaphor of the "cattle farm" applied to the "government of one people by another."

The doctrine of independence (*svarajya*, *aparadhinatva*) implied in this conception of external sovereignty was obviously the foundation of the theory of the state in relation with other states. And it gave rise to certain categories of *droit des gens* or *jus gentium* which normally influenced Hindu political thinking from at least the fourth century B. C. These concepts can more or less be grouped under the doctrine of *mandala*, that is, sphere or circle (of influence, interests, ambitions, enterprise, and what not).



This doctrine of mandala, underlying as it does the Hindu idea of the "balance of power," pervades the entire speculation on the subject of international relations. It is hinted at by Sukra³ and referred to by Manu.⁴ Kamandaka⁵ has devoted a whole chapter to the topic. It has been exhaustively treated by Kautilya.⁶ We are not concerned here with the doctrine as such; we shall only study it in its bearing on the theory of sovereignty.

In the first place, the doctrine of mandala is essentially the doctrine of vijigisu (aspirant to conquest) or Siegfried. It is the cult of expansion. Now, the Mahabharata⁷ inculcates the ethics of "manliness as the highest thing" and characterizes it as consisting in a ceaseless "upward striving". The same aspiration to "press only up" and "bend not" or "elect glory even at the cost of life" can influence each and all of the states on earth. The doctrine becomes necessarily a spur to the struggle for existence, self-assertion and world domination among the Siegfrieds. The conception is thus altogether a dynamic factor calculated to disturb the equilibrium and status quo of international politics.

First, then, in regard to the doctrine of vijigisu. According to Kautilya,⁸ it is the ambition of each state to acquire "strength and happiness" for the people. The elan vital of a ruler in Kamandaka's conception⁹ also lies in the "aspiration to conquer". The king, says he, should establish in himself the nabhi (or centre of gravity) of a system. He should become the lord of a mandala. It is part of his duty of try to have "a full sphere around him" just as the "moon is encircled by a complete orb". The "full sphere" is, of course, the circle of states related to the Siegfried as allies, enemies and neutrals. Perpetual "preparedness" must therefore be the first postulate of Realpolitik in Hindu theory. "One should be ever ready with danda" (the "mailed fist"), declares Manu¹⁰ naively, "should always have one's might in evidence and policies well-guarded, as well as be ever on the look out



for the enemy's holes". Further, one should "bring to subjection all those elements that are obstacles to the career of triumph."¹¹

The rationale of this preparedness is very simple indeed. It is as elemental as human blood itself. It goes without question in Sukraniti¹² that "all rulers are unfriendly", nay, they are "secret enemies to those who are rising, vigorous, virtuous and powerful". "What wonder in this?" asks Sukra, and his solution is given in another query which carries its own answer: viz., "Are not the rulers all covetous of territory?" Such being the data of international psychology, Kamandaka¹³ frankly suggests that "in order to do away with one's enemies their kith and kin should be employed" whenever possible. For, is not poison out-done by poison, diamond cut by diamond, and the elephant subdued by the elephant" "Fishes, again, swallow fishes, similarly relatives relatives." The Ramayana is cited in the Kamandakiniti for a corresponding precedent in diplomatic tactics. The fact is well known that in order to overthrow Ravana his brother Vibhisana was exploited by Rama.

The vijigisu, then, cannot by any means afford to indulge in pious wishes or have faith in the Utopian statecraft of idealistic dreamers. What under these conditions are likely to be the relations between the hypothetical Siegfrieds of the niti-sastras? These firebrands are normally endowed with a war-mentality and a bellicose attitude. The world in their eyes is a theater of warfare and equipment for warfare, as it has really been since the Chinese philosopher Sun Tzu's Art of War; and they proceed on the assumption that nothing can be unfair in war. The student of political science must therefore have to make almost the same remarks about the "aspirants of Hindu political speculation as those of Grotius the prolegomena to his epoch-making Laws of War and Peace (1625). "I saw prevailing throughout the Christian world", writes the father of international law, in regard to the European international politics of the early seventeenth century, "a



license in making war of which even barbarous nations would have been ashamed. Recourse was had to arms for slight reason or no reason, and when arms were taken up, all reverence for divine and human law thrown away, just as if men were henceforth authorized to commit all crimes without restraint”.

The vijigisu would think like Maude of the British War-office that the “surest means of keeping the peace is war”, or like Stockton, the American militarist, that “the army and the navy is not a burden during peace, but if properly maintained is but a paying business proposition”. He can also have the idealism of a Hegel in order to support his sadhand or Streben to win the place in the sun, and if necessary may as well induct the ancient Greek sophists in his service to prove that might is right.

The theorists who propounded the cult of Vijigisu would have been in good company with the philosophers of ancient Greece. In Aristotle’s postulate of “natural” slaves, “natural” masters, “natural” wars, and so forth, the writers of the niti-sastras could easily find a place for the “natural” aspirations, “natural” allies and “natural” enemies of their doctrine of mandala. The *Politica* assumes that the “barbarians”, or non-Greeks, were intended by nature to be slaves¹⁴ and ruled by the Greeks. And since slaves are “property” like “other things”, warfare with the object of making slaves and thus acquiring wealth is a legitimate and “naturally just” occupation.¹⁵ This Aristotelian justification of warfare can be easily recognized as forming the theoretical basis and psychological background of all wars from the conquests of Alexander and the Roman Caesars down to the Thirty Years’ War.¹⁶ Furthermore, the methods and tactics of the Christian vijigisus who are responsible for the expansion of Europe in Asia, Africa and America, can all be traced to the dicta of the father of political science, though as a rule moralists are apt to associate them with the teachings of Machiavelli’s *Prince* (1513).



The student of political science must therefore have to make almost the same remarks about the “aspirants” of Hindu political speculation as those of Grotius in the prolegomena to his epoch-making *Laws of War and Peace* (1625).

The opinions adumbrated in the *niti-sastras* are in any case neither exclusively oriental nor exclusively medieval or primitive. Nor need they be dubbed exclusively Machiavellian. For, has not the Prince furnished the fundamental logic of statesmen from the Athenian Pericles and Macedonian Philip down to the Metternichs, Bismarcks and Cavours of our own times? “Also it must be recognized”, as Figgis, justifying the methodology of Machiavelli, says in his volume on political theory, *From Gerson to Grotius*,¹⁷ “that in a state of things like international politics, where there is no recognized superior, and even International Law is but the voice of public opinion, the condition of affairs is very much more nearly akin to the state of nature as imagined by Hobbes than it is in the relation of individuals”. It is on such considerations that, like Machiavellism, the doctrine of *vijigisu* maintains its legitimate place in a theory of international relations. It provides an unvarnished statement of the only hypothesis which inherits from “beasts and birds”.

Let us now examine the other aspect of the doctrine of *mandala*, that of the struggle for existence and “place in the sun” among the states. To a *vijigisu*, as Bhisma¹⁸ declares, “right is that which a strong man understands to be right”; and the international mores of the *Mahabharata*¹⁹ is summed up in the dictum that “victory is the root of right”, just as its creed of life for the individual appraises “death as better than lack of fame”. How, then, is this quest of fame, victory or world-domination to be regulated by each state in competition with the others? Are there any rules or methods by which the competing states may guide themselves in this conflict of aspirations? These constitute in substance a natural corollary to the doctrine of *vijigisu*.



The “proper study” of the vijigisu, a Kaiser Wilhelm in posse, is, according to the Manu Samhita,²⁰ his own and his enemy’s spheres. And how are these spheres located in his imagination? Sukra gives a brief summary of the Siegfried’s investigations as to the “balance of forces” or “conjuncture of circumstances” with a view to the “Next War.” We are told that the enemies diminish in importance according as they are remote from the “centre of the sphere.” First to be dreaded by the vijigisu are those who are situated around or very near his own state, then those who live farther away,²¹ and so on. With the remoteness of location, enmity, hatred or rivalry naturally declines. Whether a state is to be treated as inimical, indifferent or friendly depends perse on its propinquity or distance. The geographical distribution of states influences their psychology in regard to their neighbors as a matter of course in such an order that the positive antipathy of the nearest dwindles into tolerable apathy of the next and gives way to active sympathy and even friendliness of the farthest distant. This, however, is not the only possible grouping of powers in a vijigisu’s estimation. The Sukra-niti²² gives another order in which the states may be distributed. According to this computation, first are situated the enemies, then come the friends, next the neutrals, and the most remote on all sides are the enemies again.

These are the elementary principles of international dealings of which elaborate accounts are given in the writings of Kautilya and Kamandaka. The theory holds that there is a hypothetical tug-of-war always being fought between the vijigisu and his ari (the enemy). These two are the combatants or belligerents. Along with these are to be counted another two states in order to furnish a logical completeness to the hypothesis. The quadrivium²³ consists of the following members:

1. The vijigisu: the aspirant, e. g., an Alexander “mewing his might,” bent on “conquering and to conquer;”



2. The ari (the enemy): the one that is situated anywhere immediately on the circumference of the aspirant's territory;²⁴
3. The madhyama (the mediatory): the one (located close to the aspirant and his enemy) capable of helping both the belligerents, whether united or disunited, or of resisting either of them individually²⁵;
4. The udasina (the indifferent or the neutral): the one (situated beyond 1, 2, and 3) very powerful and capable of helping the aspirant, the enemy and the mediatory, together or individually, or resisting any of them individually.²⁶

These four states, then, constitute the smallest unit of international grouping. From the standpoint of the vijigishu all other states are either his own allies or the allies of his enemy. Such states are held to be eight in number according to the hypothesis, How, now, is the "aspirant" to pick up his own allies from the crowd? He need only study the geographical position of these states with reference to the belligerents, i. e., to himself and to his enemy.

The madhyama (the mediatory) and the udasina (the neutral) may be neglected by the Siegfried, for the time being, in his calculation of the possible array of forces directly allied or inimical to his career of conquest. The two belligerents, with the eight others (divided in equal proportion as their allies in potentia), are then located in the following order of entente cordiale by Kamandaka²⁷ and Kautilya²⁸.

The "aspirant" occupies, of course, the hypothetical center. Next to his front is the "enemy". Now we have to calculate frontwards and rearwards. Frontwards: next to the "enemy" is situated (1) the aspirant's ally, next to that is (2) the enemy's ally, next (3) the ally of the aspirant's ally, and last (4) the ally of the enemy's ally. Rearwards from the aspirant: First is situated (1) the rearward enemy, next is (2)



the rearward ally, then comes (3) the ally of the rearward enemy, and last (4) the ally of the rearward ally.

There is nothing queer, archaic or unworkable in this conception of international relations. A simple illustration would show how humanly the political theorists of India approached the foreign policy of nations. Thus, for instance, according to the Kautilyan doctrine of mandala, the "natural enemies" of France engaged in studying the modus operandi for "the next war" would be Spain, England and Germany, and her "natural allies" Portugal, Scotland, Ireland and Russia. A French *vijigisu*, e. g., a Napoleon, embarking on a war with Germany, should begin by taking steps to keep his "rear safe". With this object he should have Spain attacked by Portugal, and manage to play off the anti-English forces in Ireland and Scotland in such a manner that England may be preoccupied at home and unable to attack France in support of Germany. As Germany, on the other hand, is likely to have China as her natural ally (supposing there is no other state between Russia and the Far East), the French *vijigisu* should set Russia against China, and so on. It is obvious that the diplomatic feats conceived by the Hindu political philosophers could be verified almost to the letter by numerous instances in European and Asian history, especially in ancient and medieval times when Eur-Asia divided into numberless nationalities.

Nay, the principle of Kautilyan mandala is in operation even now in the numerous states carved out of the old Germanistic empires (1918). For instance the manner in which Poland is being bolstered up by France against Germany on the one hand and Soviet Russia on the other is in keeping with the adumbrations of the Old Asian Richelieu. Italy's pro-Hungarian sentiments as against Jugo-Slavia (1921) are also explicable quite easily by the *niti* theory of political geography.

Be this as it may, we have to observe that the group of ten states or a decennium constitutes one complete mandala. The *vijigisu* is the



centre of gravity of this sphere. Now each state can have the same legitimate aspiration, that is, each can be fired by the same ambition to form and figure out a sphere of its own. The inevitable result is a conflict of interests, a pandemonium of Siegfrieds united in discord. The problem of statesmen in each state is to find out the methods of neutralizing the policies of others by exploiting the enemies of its rivals in its own interests. The doctrine of mandala thus makes of niti-sastra or political science essentially a science of enmity, hatred, espionage and intrigue, and an art of thousand and one methods of preparedness for "the next war."

We need not go into the details of the Machtpolitik conceived in Kautilya's Artha-sastra or in the sections on warfare in the Sukra-niti. But it is already clear that the doctrine of mandala has launched us at last into matsya-nyaya,²⁹ the logic of the fish, the Hobbesian law of beasts, anarchy. The doctrine assumes and is prepared for a world of eternally warring states. While "internal" sovereignty dawns as the "logic of the fish" sets, "external" sovereignty postulates the existence of the same logic as a fact in international relations. In one instance danda³⁰ or punishment, that is, "sanction" of the state, is exercised to crush anarchy, but it is apparently in order to maintain a world-wide anarchy that danda or Faust-recht is employed by one state against another. The theory of the state thus reared on two diametrically opposite conceptions:

1. The doctrine of danda, which puts an end to matsya-nyaya among the praja or members of a single state;
2. The doctrine of mandala, which maintains an international matsyanyaya or the civil war of races in the human family.

From one anarchy, then, the state emerges only to plunge headlong into another. This is the dilemma that pervades the polity of the Hindus.



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- ¹ Ch. III, line 646. It is not the object of this section to describe the Hindu laws of peace, war and neutrality, for which see Visvanath's "International Law in Ancient India" in the Mod. Rev., April-November 1918, and Pramatha Nath Banerji's International Law and Custom in Ancient India" in the Journal of the Department of Letters, Vol. I (Calcutta University), 1921.
- ² Book VIII, ch. II, Ind. Ant., 1910, p. 83. For older uses of the concept of *sva-raj* (self-rule) vide the Atharva-Veda, XVII, I, 22, 23, also Macdonell and Keith's Vedic Index, Vol. II, p. 494; the Mod. Rev. March 1919.
- ³ IV, I, lines 39-43.
- ⁴ VII, 154, 156, 207.
- ⁵ Ch. VIII.
- ⁶ Book VI, ch. II.
- ⁷ Book XII, ch. 56, verse 15; V, 127, 19—20; V, 134, 39; J. A. O. S., 1889, pp. 156, 187---189.
- ⁸ Ind. Ant., 1909, p. 284.
- ⁹ VIII, 1, 3, 6.
- ¹⁰ VII, 102.
- ¹¹ Manu, VII, 107.
- ¹² IV, I, lines 15—17.
- ¹³ VIII, 58, 67.
- ¹⁴ Book I, chs. II, vi.
- ¹⁵ Book I, ch. VIII.
- ¹⁶ Lawrence's Essays on Modern International Law, IV. Vide Machiavelli's Discourse. Bk. II, xxi, Willoughby, pp. 77-78, Lilly's First Principles in Politics, p. 56, Hobhouse's Metaphysical Theory of the State, pp. 100-103, Stockton, p. 203.
- ¹⁷ Page 101.
- ¹⁸ Maha, Book II, ch. 69, verse 15.
- ¹⁹ J. A. O. S., 1889, pp. 187-189.
- ²⁰ VII, 154.
- ²¹ Sukraniti, IV, I, lines 39-41.
- ²² Ibid, IV, i, lines 42-43.
- ²³ Kamandaki, VIII, 20; Manu, VII, 156.
- ²⁴ Artha, Book VI, ch. ii, in the Ind. Ant. For 1909, p. 283. For a fuller account of the Kautilyan Mandala see Law's Inter-state Relations in



Ancient India. He suggests new terminology for states 3. and 4. In the quadrivium (vide, pp. vi, 13). But so far as the problem before the vijigisu is concerned the new terms do not seem to introduce any new point of view (p. 31).

²⁵ Ibid. According to Law, madhyama = "medium power" state, cf. Inter-state etc., p. 10.

²⁶ Ibid. Law describes udasina as the "super-power" (Ibid, pp. 9-13).

²⁷ VIII, 16, 17.

²⁸ Book VI, ch. ii, Ind. Ant., 1909, p. 284.

²⁹ Kautilya, I, iv; Kamandaka, II, 40.

³⁰ Manu, VII, 20; Sukra, I, line 45.



DESIGN AND DEVELOPMENT OF A WALL PAINTING ROBOT FOR THE HOUSES WALL

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1. Introduction

Building and construction is one of the major industries around the world. In this fast moving life construction industry is also growing rapidly. But the labors in the construction industry are not sufficient. This insufficient labor in the construction industry is because of the difficulty in the work. In construction industry, during the work in tall buildings or in the sites where there is more risky situation like interior area in the city. There are some other reasons for the insufficient labor which may be because of the improvement the education level which cause the people to think that these types of work is not as prestigious as the other jobs. The construction industry is labor-intensive and conducted in dangerous situations; therefore the importance of construction robotics has been realized and is grown rapidly. Applications and activities of robotics and automation in this construction industry started in the early 90's aiming to optimize equipment operations, improve safety, enhance perception of



workspace and furthermore, ensure quality environment for building occupant. After this, the advances in the robotics and automation in the construction industry has grown rapidly.

Despite the advances in the robotics and its wide spreading applications, painting is also considered to be the difficult process as it also has to paint the whole building. To make this work easier and safer and also to reduce the number of labors automation in painting was introduced. Above all these the interior wall painting has shared little in research activities. The painting chemicals can cause hazards to the painters such as eye and respiratory system problems. Also the nature of painting procedure that requires repeated work and hand rising makes it boring, time and effort consuming. These factors motivate the development of an automated robotic painting system. This project aims to develop the interior wall painting robot.

This automatic wall painting robot is not designed using complicated components. This robot is simple and portable. The robot is designed using few steels, conveyor shaft, spray gun and a controller unit to control the entire operation of the robot. This robot is compact because of high speed and pressure capabilities they have. They also have a very small weight to power output ratio and predictable performance i.e. losses are minimum due to less number of moving parts and so gives expected performance. Due to elegant and simple control systems it can control noise vibration and does silent operation and no vibration is produced.

It has longer life, flexibility and it is efficient and dependable, and the installation is simple and the maintenance is also easy. Some of the conditions that have to be considered while using this robot is that the system is operates in pneumatics, so it needs air tank or compressor and the electric shock is always there, which makes the machines ugly and dust and dirt are adhering to them. The life of the



parts like seals, packing and gaskets etc., are very short but, they are essential to prevent leakage so that the system becomes costlier.

The development of service robots became popular recently due to the fact that the society needs robots to relax humans from tedious and dangerous jobs. In Egypt, as well as other developing countries, the increasing population stimulates the construction-related activities such as interior finishing and painting. Painting is classically done by humans and generally requires exhaustive physical efforts and involves exposure to dangerous chemicals. Chemicals can seriously impair the vision, respiratory system and general health of the human painter. These factors make painting an ideal candidate process for automation.

2. Mechanical System Design

The construction of the automatic wall painting robot consists of two main parts. They are

A). Mobile platform

1. Frame stand
2. Wheel
3. DC motor
4. Control unit

B). Spray gun mount

- IR Sensor
- Flow control valve
- Spray gun

2.1 Frame Stand and Wheel

The frame stand is the steel screwed in such a way that it can carry the whole equipment. The steels are screwed strongly in workshop. Four wheels are attached to the frame stand in order to move the robot in the direction specified. The movement of these wheels is controlled by the DC motor rotation which is controlled by the controller. Since it is



obvious that if either the movement of front or back wheels are controlled automatically the movement of the other one will be controlled. Therefore, in this robot the movement of the back wheels is controlled using the DC motor such that the movement of entire robot is controlled.

2.2 Dc Motor

DC motors are widely used in speed and direction control because control of these motors are easier than other motors. The motion of a DC motor is controlled using a DC drive. DC drive changes the speed and direction of motion of the motor. Some of the DC drives are just a rectifier with a series resistor that converts standard AC supply into DC and gives it to the motor through a switch and a series resistor to change the speed and direction of rotation of the motor.

2.3 Control unit

The controller unit is used to control the DC motors and the movement of spray gun fitted on the conveyor belt. Controller unit is provided with the 12V signal and as soon as the supply is ON. The controller sets to setting mode and the moving and painting distance are given as input to the controller. The controller controls the rotation of DC motor based on the distances given in order to control the wheel and conveyor belt movement. When IR receiver receives the signal, the conveyor belt moves and the spray gun goes to ON condition and if the conveyor belt stops, the spray gun goes to OFF condition. It contains relays for the control of forward and backward movement of the DC motors.

2.4 Electrical and electronic system

There are main parts in the electrical and electronic system of the painter robot. They are: the power supply module, the sensor module,



the electro-pneumatic system, an AC induction motor drive system, and a control panel.

A proper distribution of power supply is required to activate the components of the system. The AC and DC voltage are supplied and distributed as depicted. Normally, a 12-volt direct current is required for most of the electrical and electronics components, such the sensors, the pneumatic valve and the limit switches. In this project a commercial switching power supply unit is used to convert the AC voltage from the mains source to a 12-volt DC source. The 12-volt DC output is distributed to activate the main controller, the sensors, the limit switches, the start/stop button, the indication light and the motor-driven relay. The AC induction motors are connected directly to the mains supply.

The sensors are used to determine the following:

(1) Does the arm reach the correct position for painting the ceiling? If the arm does not reach the correct position, the sensor will send a signal to the actuator to place the arm more accurately. This optical sensor is mounted on the z-axis.

(2) Is there any obstacle at the front, rear or side? If there is no obstacle, the sensor will send a signal to the actuator and the pneumatic valve to move the arm and to start the spray gun painting. If there is an obstacle, the sensor will send a signal to change the position of the arm. These optical sensors are used in the z-axis and the x-axis.

(3) Do the actuators move more than the maximum limit? To prevent over movement of the actuators, six electromechanical switches are used in the x-axis, the y-axis, and the z-axis.

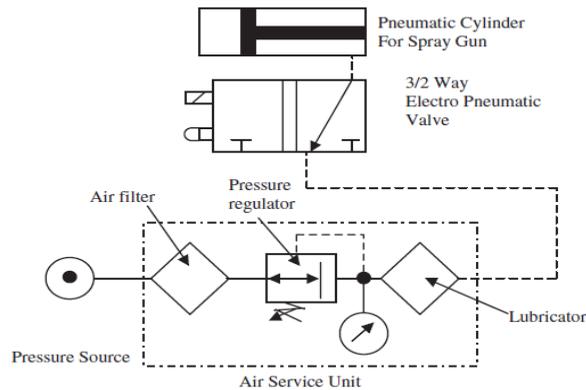


Fig. 1 pneumatic system of the robotic system

The actuator of the robotic system consists of a spray gun and a single acting cylinder. When the output signal is fired, it will activate the 3/2-way normally closed valve. This will allow the air to flow through the valve and cause the piston of the cylinder to extend. When the piston of the cylinder extends, it will press the lever of the spray gun and the painting starts. When the output signal is removed, the 3/2 valve will deactivate and the piston of the cylinder will retract due to its spring tension, which will release the spray gun lever, and painting will stop. The actuator operates using the air compressor. The recommended air pressure is between 5 and 10 bars. It is necessary to use an air service unit that consists of an air filter, a pressure regulator and an air lubricator to protect the actuators.

The control panel is a thin metal box, which is mounted at the bottom of the system. All the electronic components, such as relays, the DC power supply unit, the PLC, the pneumatic valve and the capacitors, are fixed inside the control panel. The start button, the reset button and the indicator are fixed on the upper surface of the control panel. The indicator will turn on when the system goes into an unwanted state. The layout of the components inside the control panel is designed according to the following criteria:



- (1) All the switches can be fixed in the panel;
- (2) The devices can be easily wired;
- (3) The wiring is neat, with proper connections to avoid the possibility of short circuits.

2.4.1 Power Supply Unit

The DC level obtained from a sinusoidal input can be improved 100% using a process called full-wave rectification. It used 2 diodes in this configuration. From the basic configuration we see that one diode is conducting while the other one diode is in "off" state during the period $t = 0$ to $T/2$ Accordingly for the negative of the input the conducting diodes. Thus the polarity across the load is the same. The filter circuit used here is the capacitor filter circuit where a capacitor is connected at the rectifier output, and a DC is obtained across it. The filtered waveform is essentially a DC voltage with negligible ripples, which is ultimately fed to the load.

2.5 IR sensor

IR sensor is used for this project. IR (Infrared) is the typical light source being used in the sensor for robot to detect opaque object. In this project, no programming, controller and soldering are required. IR Sensor (IR Receiver and IR Emitter) the basic principle of IR sensor is based on an IR emitter and an IR receiver. IR emitter will emit infrared continuously when power is supplied to it. On the other hand, the IR receiver will be connected and perform the task of a voltage divider. IR receiver can be imagined as a transistor with its base current determined by the intensity of IR light received. The IR transmitting circuit is used in many projects. The IR transmitter sends 40 kHz (frequency can be adjusted) carrier under computer control (computer can turn the IR transmission on and off). IR carriers at around 40 kHz carrier frequencies are widely used in TV remote



controlling and ICs for receiving these signals are quite easily available.

2.5.1 IR Sensor Features:

- Input voltage: 5VDC
- Sensing Range: 15cm
- Output signal: analog voltage

2.6 Single Acting 3/2 Solenoid Valve

A solenoid is an electrical device that converts electrical energy into straight line motion and force. These are also used to operate a mechanical operation which in turn operates the valve mechanism. Solenoids may be push type or pull type. The push type solenoid is one in which the plunger is pushed when the solenoid is energized electrically. The pull type solenoid is one in which the plunger is pulled when the solenoid is energized. The Solenoid control valve is used to control the flow direction is called cut off valve or solenoid valve. This solenoid cut off valve is controlled by the electronic control unit.

2.7 Mechanism

This is project mechanism work on principle of "SCISSOR LIFT MECHANISM". A scissors lift uses linked, folding supports in a criss-cross 'X' pattern, known as a pantograph. The extension is achieved by applying pressure to the outside of a set of supports located at one end of the lift, elongating the crossing pattern. This can be achieved through hydraulic, pneumatic, mechanical or simply muscular means. It may require no power to return to its original position, but simply a release of the original pressure.

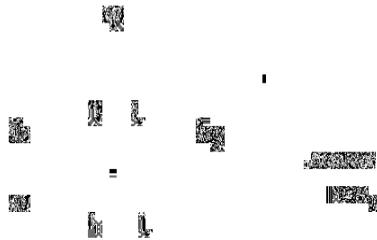


Fig. 2 Scissor lift mechanism

2.8 Paint supply section

This consists of a paint pump, paint tanks (for primer and overcoat), a compressor to drive the pump, and a reel to wind up the paint hose. The paint pump is a lightweight airless type which greatly reduces the dispersion of paint mist.

2.9 End-Effector Module

The end-effector module is designed in such a way that it can hold a spray gun and operate the spray gun during the operation. A single acting pneumatic cylinder is attached to the lever. The lever can move up and down by the actuation of a cylinder. The proposed design is the end-effector module. Two hosepipes are attached to the spray gun. One of them is directly connected to a paint tank and the other is connected to an air compressor. The paint tank is a pressure vessel and is directly connected to the air compressor. The paint is moved through the hosepipe by air pressure. The air pressure that is used by the robotic system to perform the painting activity is 10 bar. This air pressure is kept constant throughout the operation to achieve the standard quality paint.

3. Painting movement of robot

Below fig. shows the movement path and coordinates of the end-effector of the robotic system, as determined by the control algorithm.

During operation, at first the end effector (spray gun) will move from its home position $O(0, 0, 0)$ along the z direction. It will continue to move until the upper sensor detects the ceiling. After detecting the ceiling, the z -axis motor will be stopped and the end-effector will reach point $A(0, 0, 72)$. The detection distance of the photoelectric sensor between the spray gun and the ceiling can be adjusted. In this case, the detection distance was set to 20 cm. From this point, the pneumatic cylinder will trigger the spray gun for painting and at the same time it will move along the y direction until it touches the limit switch. After touching the limit switch, the movement of the end-effector and the painting will be stopped and it will reach point $B(0, 30, 72)$. Now the end effector will change its position along the x direction from B to $C(25, 30, 72)$. From this point the end-effector will move in the reverse direction along the y -axis and the painting will continue again until it reaches point $D(25, 0, 72)$. After that it changes its position from D to $E(50, 0, 72)$ along the x -axis. The same operations will continue until the end-effector reaches point $J(100, 30, 72)$. After reaching this point, the end-effector will return to its home position following the path $JKLO$. To complete the painting operation the end-effector will travel five times along the y direction and four times along the x direction.



Fig. 3 Three D view of the proposed robotic system



Fig. 4 compressor are used in the robotic system

3.1 Tables

Table 1 Composition of material

Base plate (AISI TYPE 304 Stainless Steel)	COMPOSITIONS	
	Components	Wt %
	C	Max 0.08
	Cr	18-20
	Fe	66.34-74
	Mn	Max 2
	Ni	8-10.5
	P	Max 0.045
	S	Max 0.03
	Si	0.01

Table 2 Mechanical properties of base plate

Mechanical properties	Value
Modulus of elasticity	190 Gpa
Modulus of Rigidity	73.1 Gpa
Poisson Ratio	0.305
Unit Weight	76 Kn/m3



Table 3 Specification of the proposed robot

Type of Robot	Cartesian
Robotic control	Automatic
Degree of freedom	3
Degree of Movement	4
Working Envelope	(100*30*72)cm
End effector actuation	Pneumatic

Table 4 Mechanical properties of the Body structure, Column and Links (Aluminum)

Sr No.	Material Properties	Value
1	Modulus of elasticity	71.1 Gpa
2	Modulus of Rigidity	20.9 Gpa
3	Poisson Ratio	0.3333
4	Unit Weight	26.6 Kn/m ²

3.2 Painting performance test

After integrating the total system, the painting test was performed. By observation it was seen that the painting quality depends on the air pressure, the paint-air ratio and the speed of the y-axis motor. The paint-air ratio can be adjusted by a screw on the spray gun. The speed of the y-axis motor can be adjusted by the inverter. The maximum painting area that can be painted by the robot is 7200cm² in one positioning. To paint this area this painter robot takes 180 seconds. The painting quality is smooth and consistent. From this test it is observed that the single coating is enough to get the standard quality



painting. To paint the same ceiling area manually takes more than 300 seconds and the painting quality is not so smooth. Good-quality painting requires at least two coats.

4. Conclusions

The painter robotic system has achieved optimum benefits with regard to reliability, safety appearance, and ease of use. All the objectives set up for this system have been achieved successfully. In terms of mechanical design, the X-axis, the Y-axis, the Z-axis module and the end-effectors module were designed and fabricated properly. All motor mountings and couplings were properly adjusted. All the prismatic joints were developed successfully. In terms of electrical and electronic systems, the power distribution module, the sensor module, the electro-pneumatic system, the AC induction motor driving system and the control panel were developed successfully. In terms of software development, the author had written a control program for the painter robot. This was indicated by the performance of the painter robot. Each movement of the painter robot was successfully controlled by the control program. It can be reprogrammed easily to cope with any changes in the process. A conclusion can be made that the painter robotic system had been successfully created to solve the problem of working in an upright position, which is very troublesome, boring, unhealthy and harmful to a human being if the working period is long.

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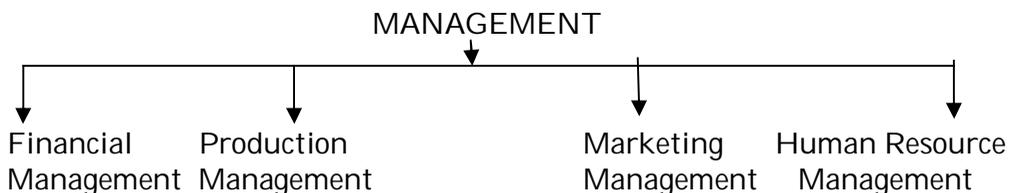
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HUMAN RESOURCE MANAGEMENT:THE CHAMPION OF MANAGEMENT

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Management is a universally necessary function. It has risen today as the central activity of our age and economy as a powerful and innovative force. It is found in homes, churches, government and economic undertakings of people. Koontz and O'Donnell state that "management means getting things done through and with the people. 'HAIMANN' observes that "management is the function of getting things done through people and directing the efforts of individuals towards a common objective" Further we can segregate management into four important parts which are as follows.



Management Concept: Before a study of human resource management is undertaken, it is necessary to have an idea of what management in general is. Management is a universal discipline, of which human resource management is an important part. In general management is a science, which is concerned with the art of getting pre-determined results, in set time, by economical and proper use of apt human and material resources. In other way, management describes a set of functions directed towards: 1. Setting goals or objectives 2.



Obtaining suitable material and human resource to further set objectives. 3. Using such resources properly 4. Getting envisaged results in specified time.

Organizations Objectives and Resources: Every organization should have some objective to fulfill. No organization can exist without any purpose. But organizations differ according to purpose, and purpose differs according to organization. Thus, the objective of a School is to impart knowledge and build character amongst students, the purpose of Hospital to provide health service and curing illness, the purpose of industry is to produce goods and services for the use of consumers.

Organizations Objectives and Resources:

Organizations	Objectives	Material Resources	Human Resources
Main			
Family	Rearing Children, Sex, Education, Economy, Culture	House, Income, Equipment	Parents, Children, Neighbors
School	Education, Character, Play	Building, Books, Audiovisual equipment, Furniture etc	Students, Teachers, Administrative Staff.
Hospital	Health, Curing illness & Service	Building, Medicine, Diagnostic and other equipment	Doctors, Nurses, Surgeons, Ward boys, Administrative Staff.
Factory	Production of	Building,	Executives,



	goods & services	Machinery, Power, Raw material	Supervisors, Workers.
State	Security, People's welfare.	Land, Rivers, Forests, Mines, Seas, Industries, Schools, Roads etc.	All citizen, President, Ministers, Legislators, Artists, Writers, etc.

Source: Human Resource Management- M V Moorthy & consultants, Bangalore. p -3

Resources: Without resources, no objectives can be achieved. And an objective is useless if it is not realized. It will remain a daydream only. Resources are the means for getting results or for fulfilling objectives. Without means it is impossible to reach set goals. Just as an army, however disciplined and trained cannot win battles without the necessary equipment, so also no organization, be it industry, hospital or school can obtain results without aid of required resources. There are mainly two types of resources.

(A) Material Resources :1) Money-Cash and credit, 2) Land and building, 3) Powerwater, wind, electricity, electronic, 4) Raw material, 5) Machinery, Tools, Equipments etc

(B) Human Resources: Persons viz Management, Middle management, other workers etc.

Human Resources Human resources of an organization are composed of all human beings working in that organization. Human resources are animate ones while material resources are inanimate. It should be noted that in the first instance it is human beings that create or bring together material resources which are necessary and are made available for the working of the concerned organization. Therefore it may be



asserted that without human beings, there would be no material resources available at all. But it is waste of human resources to employ over-qualified persons to do simple job. Conversely, it is wrong use of human resources to employ under-qualified persons for jobs needing high skills and responsibilities.

3R`s of Human Resource Management All the Human Resource Management functions can be sequentially and logically grouped under the 3 R's. It expresses the essence of the HRM.

(I) RECRUITMENT: Personnel planning, job analysis, job knowledge, application blank, contact with labor sources, inviting applications, screening applications, staggering interviews, the interview, selecting the candidates.

(II) RETAINMENT: Induction, placement and job assignment, preliminary employee, counseling, wage and salary administration, administration of leave, shift system, transfers, discipline maintenance, grievances and their settlement, communication engineering, incentives, rewards, motivation, training, employee welfare, supervisory leadership, human approach, employee assessment, promotion, union-management relations, collective bargaining, workers-management participation, public relation.

(III) RETIREMENT: Retirement interview, reward and recognition, provident fund, pension, gratuity, filling vacancies (recruitment)



Differences between Human and Material Resources

SL NO	HUMAN	MATERIAL
1	Animate	Inanimate eg-Cotton, Steel Paper machine
2	Work for support of self & others	Need not work for support
3	Growing physically & mentally	Not growing
4	Have feelings	No feelings
5	Can think	Cannot think
6	Can learn	Cannot learn
7	Each person is unique? (Physically, mentally, emotionally)	Uniformity
8	Has no replaceable parts	Machine parts can be replaced
9	Can not be totally replaced	Can be totally replaced
10	Have sentiments.	No sentiments
11	Has opinions and attitudes	No opinion, no attitudes
12	Reactions cannot be foreseen	Reactions can be foreseen.
13	Needs rest	Except machines, Other materials need no rest.
14	Can form unions	Cannot form unions
15	Can be honest or dishonest	Cannot be dishonest
16	Can bargain	Cannot bargain
17	Have affective relations. (eg- Wife, Children, Parents, Colleagues)	No affective relations.
18	Can take initiative.	Cannot take initiative.
19	Mobile	Not mobile
20	Can express feeling, opinions etc	No language
21	Changeable in mode	Not changeable in mode.

Source: Human Resource Management- M V Moorthy & consultants, Bangalore. p -20-21



Definitions of HUMAN RESOURCE MANAGEMENT:

According to Michael Armstrong (2006), Human resource management is defined as a strategic and coherent approach to the management of an organization's most valued assets – the people working there who individually and collectively contributes to the achievement of its objectives. In the words of Edwin B. Flippo (2007), Human Resource Management is- “the planning, organization, directing and controlling of the procurement, development, compensation, integration, maintenance and reproduction of human resources to the end that individual, organizational and societal objectives are accomplished”.

John Storey(1989) defines Human Resource Management as a distinctive approach to employment which seeks to achieve competitive advantage through the strategic deployment of a highly committed and capable workforce, using an integrated array of cultural, structural and personal techniques.”

Edwin B. Flippo – Human resource management is “The planning, organizing, directing and controlling of the procurement, development, compensation, integration and maintenance of people for the purpose of contributing to organizational, individual and societal goal.”

SCOPE OF HRM: The scope of HRM is indeed very vast. It leads to improvement in the organizational efficiency, work culture, job satisfaction, better understanding and human relationships resulting in cordial industrial relations and better productivity. The management incorporates human resources policy backed by great human values, understanding, concern for the welfare of their people and constant efforts for human development, there is possibility for the organization people to reciprocate with better behavior self co-ordination, sincerity, achievement, motivation and greater co-operation. To be precise, HRM has great scope to improve organizational climate and efficiency. The vast scope of HRM can be summed up as follows:- (i) A cordial worker



management relationship would be possible. (ii) Management would be able to understand their people better. A situation would be created in the organisation for the employees to enjoy their works and gain substantial job satisfaction.

OBJECTIVES OF H R M: Each activity done within the organisation directly or indirectly connects to the organizational goals or it can be said that work done in the organisation is a part and parcel of the work to attain some specific objectives and goals. Objectives can be termed as a predetermined ends or goals at which individual or group activity in an organisation is aimed. Following the objectives of an organisation in to two categories- - Primary objectives. - Secondary objectives.

- Primary Objectives There are the objectives, which are to be carried out by the H. R. Department, while the secondary objectives are the one which support the primary objectives.

- The first and prime objectives of H. R. Department are to create a work force with the ability and motivation to accomplish the basic organizational goals.

- Secondly to specify the personnel objectives of workforce through monetary and non monetary to factors of production. Non monetary devices include prestige, recognition, security status.

.Thirdly, to specify the social objectives such as serving the customers honesty, promoting a higher standard of living in the community bringing comfort and happiness to society, protecting women and children and providing for aged personnel.

- Secondary Objectives These objectives are used to achieve the primary objectives economically, efficiently and effectively. The fulfillment of the primary objectives is contingent upon:

(i) The economic need for or usefulness of the goods and services required by the community society. (ii) Conditions of employment for



all the members of an organisation which provide for satisfaction in relation to their needs so that they may be motivated to work for the success of the enterprise.

(iii) The effective utilization of people and materials in productive work.

(iv) The continuity of the enterprise.

The methods adopted by business organisation in fulfilling the primary purposes must be consistent with the ethical and moral values of society and with the policies and regulations established by legislative action.

OBJECTIVES OF HRM

Objectives and Organization of HRM



Strategic HRM



Employment

- Job Design and Analysis
- Human Resource Planning
- Recruitment and Selection

Human Resource Development

- Performance Appraisal
- Training and Development
- Career Planning and Development
- Promotion, Transfer and Demotion
- Management of Change, Development and Culture

Compensation Management

- Job Evaluation
- Wage and Salary Administration
- Social Security and Welfare

Human Relations

- Motivation and Job Satisfaction
- Morale
- Communication
- Leadership

- Work Environment, Industrial Accidents, Safety and Health

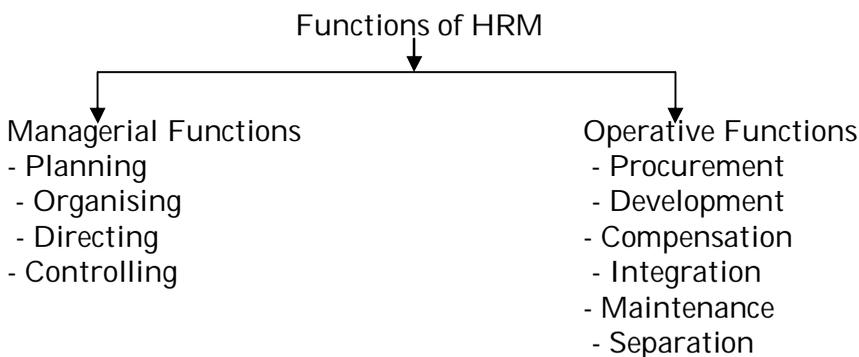
Industrial Relations

- Indian Labour Market
- Industrial Relations
- Trade Unionism
- Collective Bargaining
- Industrial Conflicts
- Workers Participation in Management and Quality Circles

Recent Trends in HRM

- Quality of Worklife and Empowerment
 - Total quality HRM
- HR Accounting, Audit and Research
- Recent Techniques in HRM

FUNCTIONS OF H R M: Human Resource Management is the management of human resources in the organisation and is concerned with the creation of harmonious working relationships among its participants and bringing about their utmost individual development. Infact, H.R.M. undertakes all those activities which are concerned with the human elements or relations as well as with material elements in an organization and the functions listed therein. The main objective of these functions is to bring together expertise in a scientific way and to create attitude that motivate a group to achieve its goals economically, effectively and speedily.





The functions of H.R.M can be broadly classified into two broad categories. 1. Managerial Functions 2. Operative functions

1. Managerial Functions A managerial function of HRM involves, planning, organizing, directing and controlling. All these functions influence the operative functions.

(a) Planning H.R. administration should be able to predict trends in wages in labour market, in union demands, in other benefits, in personnel policies and programmes. The task of forecasting personnel needs in relation to changes in production or seasonal variations and the leveling out of differences in production is extremely important both for employees and for management. Therefore planning or decision making has to be undertaken much in advance of an action, so that unforeseen or anticipated problems and events may be properly handled. This is also stressed by the saying "Good Managers make thing happen."

(b) Organizing An organisation is a means to an end. It is essential to carry out the determined course of action. A complex relationship exists between the specialized departments and the general department as many top managers are seeking the advice of personnel manager. Thus, organization establishes relationships among the employees so that they can collectively contribute to the attainment of company goals.

(c) Directing Directing the subordinates at any level is a basic function of the managerial personnel. Directing is involved with getting persons together and asking them through either command or motivation to work willingly and effectively for the achievement of designated goals. Directing deals not only with the dissemination of orders, within an organisation units and department but also with the acceptance and execution of these orders by the employees. Thus, direction is an important managerial function in building sound industrial and human relations besides securing employee contributions.

(d) Controlling After planning, organizing and directing the various activities of the H.R.M, the performance is to be verified in order to know that the personnel functions are performed in conformity with the plans and directions.



Controlling also involves checking, verifying and comparing of the actual with the plans, identifications of deviations, if any, and correcting of identified deviations. This action and operation are adjusted to pre-determined plans and standard through control.

2. Operative functions The operative functions of HRM are related to specific activities of personnel management. All these functions are interacted by managerial functions. Further, these functions are performed in conjunctions with managerial functions.

(a) The procurement function It is concerned with the obtaining of a proper kind and number of personnel necessary to accomplish our organisations goals. It deals with specifically with such subjects as the determination of manpower requirements, their recruitment, selection and placing, induction, follow-up, transfer, lay-offs, discharge and separation etc.

(b) The development function It is concerned with the personnel development of employees by increasing their skills through training so that job performance is properly achieved. Drafting and directing training programmes for all levels of employees providing vocational counseling's, conferences and appraising employees potential and performance are undertaken under this function.

(c) The compensating function It is concerned with securing adequate related to wage surveys, establishment of job classification, job descriptions and job analysis, merit ratings, the establishments of wage and wage structure, wage plans and policies of wage systems, incentives and profit sharing plans and policies of wage systems.

(d) The integration function It is a process of interaction among human beings. Human relations is an area of management in integrating people into work situation in a way that motivates them to work together productively, co-operatively and with economic, psychological and social satisfaction. This includes understanding and applying the models of perceptions, personality, learning intra and interpersonal relations, intra and inters group relations.



Motivating the employees, Boosting employee morale, Developing communication skills, Developing the leadership skills. Redressing employee grievances properly in time by means of a well formulated grievance procedures, Handling disciplinary cases by means of an established disciplinary procedure. Counseling the employees in solving their personal, family and work problems and releasing their stress, strain and tensions, Improving quality of work life of employees through participation and other means, The maintenance function.

It deals with sustaining and improving the conditions that have been established specific problems of maintaining the physical conditions of employees' (health and safety measures) and employees' service programmes are the responsibilities of the personnel department.

IMPORTANCE OF HRM

No other factor is more important than efficient and committed man power. The human is at the centre of all work and all development comes from the human mind. The importance of HRM are as under:

1. Social Significance Sound HRM has a great significance for the society. It helps to enhance the dignity of labour in the following ways - (i) Providing suitable and productive employment, which might bring them psychological satisfaction. (ii) Maintaining a balance between the job available and job seekers according to qualification and needs. (iii) By helping people make their own decisions that are in their interest. (iv) Eliminating waste of improper use of human resource, through conservation of their normal energy and health.

2. Professional Significance By providing healthy working environment it promotes team work in the employees. This is done by (i) Maintaining the dignity of the employees as 'human beings'. (ii) Providing maximum opportunities for personal development. (iii) Improving the employee working skill and capacity. (iv) Correcting the error of wrong posting and proper reallocation of work.



3. Significance for individual enterprise It can help the organisation in accomplishing its goal by; (i) Creating right attitude among the employees through effective motivation. (ii) Utilising effectively the available human resources. (iii) Securing willing co-operation of the employee for achieving goals of the enterprise.

4. National Significance H.R. & their management plays a vital role in the development of a nation. The effective exploitation and utilisation of a nation's natural, physical and financial resource require an efficient and committed manpower. There are wide differences in development between countries with similar resources due to differences in the quality of their people. Countries are underdeveloped because their people are backward. The levels of development in a country depend primarily on the skills, attitudes and values of its human resources.

HRM has become very important because of the following factors in recent decades. (i) Increase in the size and complexity of organization, e.g. a multinational organization employing millions of persons (ii) Rapid technological development like automation, computerization etc (iii) Rise of professional and knowledge workers (iv) Increasing proportion of women in the workers (v) Growth of powerful nationwide trade union (vi) Widening scope of legislation designed to protect the interest of the working class (vii) Devolution in information technology that might affect the work force (viii) Rapidly changing jobs and skills requiring long term manpower planning (ix) Growing expectation of society from employers.

Conclusion: Human Resource Management Worldwide includes various basic functions. It has to procure people for the organization, it has to retain people by compensating them adequately, and it has to ensure the satisfaction of their biological, psychological and social needs through the provision of facilities and systems for the maintenance of

satisfying quality of life. It has to ensure that the organization's human resources, unlike its material resources appreciate over time through training and development and, Lastly, the Human Resource Management has to create such organizational conditions that ensure the fuller utilization of its human resource's collective and individual potential.

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TYPE OF WOMEN'S IMAGE PORTRAYED IN TV SERIALS

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Women have generally been restricted to the role of a home-maker; that of a mother and wife. Despite major changes that have occurred in the status of women in some parts of the world in recent decades, norms that restrict women to the home are still powerful in India. In spite of India's reputation for respecting women, including treating her as a Goddess, history tells us that women were also ill-treated. There was no equality between men and women. The folks and society at large consider women as second class citizens. Though we admire and preach them in the name of *Durga*, *Saraswati*, *Parvati* and *Kali*, we also abuse her in the form of Child-marriage, Female infanticide, Sati, Sexual harassment, Dowry and so on. The status of women in India has been subject to many great alterations over the past few millenniums. The last few decades have seen tremendous changes in the lifestyles of women across all over the globe. Globalization, market economics and above all, fast strides in technology have affected virtually all facets of life.

With the advent of computers and telecommunications, media has also undergone a sea of change. Media in India, which until a few years back used to comprise of the morning newspaper, the radio broadcasts and the sole television network screen images of "doordarshan", comprises today of a dazzling and at times mind boggling array of communication devices. The media, which was earlier



merely a reporting device, is today a vibrant means of shaping, molding and influencing public opinion. However, in spite of all these changes, the media has not managed to overcome the typical stereotypes that are associated with women in India. While there are certain departures from this, the fact remains that by and large, there is a huge potential for better and a more realistic projection of women. It does not require any detailed analysis to conclude that the media is in a state of confusion and are perhaps unsure of the way they want to see women. On the one hand they still have this eternal image of a woman who is confined to the boundaries, duties and responsibilities of her home and her family. This paper will concentrate on the representation of women in serials' content by looking specifically at how female characters are portrayed in order to address the issues of media representation of women.

The status of women in modern India is a sort of a paradox. As compared with past; women in modern times have achieved a lot in all field of the society. They are doctors, scientists, socialist and educationists. They have excelled their counter parts men in all field of life but in reality still they have to travel a long way. The women's movement in India has been addressing various social issues and has gained the momentum through years. Several mechanisms have been created in the country to work for the enhancement of women and generate social awareness on gender issues. Empowerment of women and the capacity building has become the main goal to remove discrimination. While several legal and policy level initiatives have been taken. There are great deals of concerns remaining to be addressed in the matters of women's education. Skills development, employment, health, say in decision-making and other social issues including a basic transformation in archaic mind set about the attitude to women.

The central government launched a series of economic and social reforms in 1991 under Prime Minister Narasimha Rao. Under



the new policies the government allowed private and foreign broadcasters to engage in limited operations in India which lead to expansion of broadcasting industry. T.V. has been viewed as tool to shape public opinion. The main themes and plots of the show often revolve around issues of family and gender. Among satellite channels, STAR TV and Zee TV tend to dominate, although Sony, STAR PLUS and Sun TV are also represented among the top 20 shows. Television is widely known to represent and reinforce the mainstream ideology of contemporary western culture: patriarchy (role of the father). While television representations of women have changed greatly in the last twenty years alone, in order to accommodate the changing role of women in society, one is led to ask how much the ideology has changed behind the more modern representations of women. Television is regarded by many viewers to be the most 'real' form of media. If this is the case, then it is important for us to question how real the representations of women are on television and how this affects the attitudes of those who watch. The portrayal of *women* in television is becoming a cause of concern. They are used as accessories and as glamorous props. Do movies and TV present an accurate portrayal of today's modern women? By and large the portrayal of women in serials is purely for sentimental and cosmetic purposes and nothing else.

Women are the gift of God who give birth, take care of children, support children in times of difficulty, encourage them in happy times and make them responsible citizens. In the name of being "modern", most television advertisements are focusing on women as sex objects, whether they sell mobile phones or soft drinks. The worst offenders are advertisements for deodorants and perfumes, which show women running after a man only because he has used some brand of spray perfume. Most advertisements try to show that a woman's body is a fantasy object. Most ads treat women as a commodity rather than a human being.



Television offers a wide range of potential role-models, both positive and negative. Many people find these models of some use to them. It is not inevitable that viewers accept television gender images without question, not all women, children - or even men - are passive victims of patriarchal stereotyping. Though there is little doubt that television presents largely traditional gender images, there is mixed evidence about the impact of such images on gender attitudes and behavior. It is difficult to isolate the role of television, since people are influenced by their whole environment, although there is fairly widespread agreement that over time television seems likely to influence people's ideas about gender roles. Indications from research suggest that TV has had a significant impact on the personal reality structure of its viewers. (Seiter, Borchers, Kreutzner and Warth, 1989). Ferguson (2012) focused on the potential negative role of sexualized violent media on viewer attitudes toward women. Women who watched sexually violent media were more anxious, and males who watched sexually violent media had more negative attitudes toward women.

Researchers in Ohio University, in their study of a radio soap-opera broadcast in India suggest the programs can carry effective educational messages and change mass behavior. If the message is appropriate and the problem is common, you reach a large number of people with this communication". Soaps -operas needn't be perceived as a mindless genre. Viewers have an ongoing relationship with characters so they become an important part of their daily life. His studies have also drawn from the social learning theory, which suggests that human beings don't always learn directly from the humans, but learn from observing characters in mass media.

Dwivedy, Patnaik and Suar (2009) examine role portrayals of men and women in Indian magazine ads. They found that women in Indian magazine ads are primarily portrayed in traditional roles such as concerned with physical attractiveness, housewives and sex objects.



Contrarily, men are portrayed in sex appeal, authority figures, career-oriented, and outdoor roles. Eyal and Kunkel (2008) this study tests the effects of exposure to sexual television content on emerging adults' sexual attitudes and moral judgments. One hundred and ten college freshmen were randomly assigned. Results indicate that exposure to shows that portray negative consequences of sex leads to more negative attitudes toward premarital intercourse and to more negative moral judgments of characters engaged in this behavior.

Television, serves two purposes in addition to entertaining us — it shows a mirror to the society for what it is and projects what a society collectively aspires to be based on the outlook and aspirations of its audience. If the current crop of entertainment is any indication, our society remains predominantly antiquated as far as role of women is concerned and the outlook does not look any better. Women wearing expensive saris, decked from head to toe in gold, holding a *thaali* containing fruits and flowers and praying sincerely for the welfare of their husbands and his family. This is the typical portrait of a woman in Indian Television (TV) serials; a perfect wife, perfect mother and perfect daughter-in-law who showers love on all her loved ones and is an icon of purity and devotion for the audience.

The issue that arises here is: What kind of images do these serials portray to the next generation? Are women the only ones who have the strength to keep a family together? Do men have no role to play at home? Is the docile nature of a woman her only acceptable trait? What about the larger reality that we face today, a world in which a woman is given an equal status in society?

However, there seems to be a change in this image of an Indian woman. Recently, serials are being made to depict the younger generations, which represent the more realistic view of ladies in society, right from college girls to sometimes single, working and independent



mothers. Social issues, such as child marriage [in a serial called 'BalikaVadhu'] and a sensitive approach to disorders such as autism ['Aapki Antara'] has begun to draw TRPs and are gaining popularity amongst the viewers. Though highly dramatized, BalikaVadhu deals with issues like child marriage and the treatment of the girl child, which are new concepts for Indian serial addicts. These serials have presented women in a different light, having more strengths and talents than previously shown on TV.

No matter whether we agree or disagree with the debates, discussions and arguments that take place, these shows are here to stay and undoubtedly form an integral part of millions of serial watchers across India. From the first TV sitcom 'Hum Log' launched in 1984, to the countless number of serials appearing every day on television channels, TV serials have created screen icons, blossomed a sense of romance in the hearts of many and provided a fine source of entertainment for those who enjoy watching them as well as for those of us who mock them. So the next time you're flipping channels, do take a moment to stop at Sony, Zee, Doordarshan, Star One or Star Plus to experience what this ever expanding cult of women [and men] enjoy, devoting their afternoons and evenings to watch a colorful drama unfurl, tuning out the real world for a dash of family *tadka*.

OBJECTIVES OF THE STUDY:-

1. Impact of women's projected image on their empowerment.
2. Impact of women's projected image on day to day life of the women.
3. Perception of male and female regarding images of women projected in TV serials.

HYPOTHESES OF THE STUDY:

1. Women's image projected in TV serials would have influence on their empowerment.



2. Women's image projected in TV serials would have influence on their day to day life.
3. There would be difference in the perception of male and female participants regarding images of women projected in TV serials.

Methods

Participants

The sample of study included 81 participants (40 Men and 41 Women) between the age group of 18 – 25 years. Simple random sampling was done for the sample selection. The present study was conducted on men and women in the tri-city (Panchkula, Chandigarh and Mohali).

Tool Used:

The construction of tools was done keeping in mind the objectives of the study. The semi- structured interview schedule was used as the main data gathering instrument for this study. The interview schedule was divided into two main sections: A profile and the survey proper.

The profile contains socio-demographic characteristics of the respondents such as age, gender, qualification. The survey proper explored the perception of the viewers on the image portrayed of women in television serials. The questions were structured using the three, five, seven and nine point scale format. Items were constructed in a systematic manner. There were number of interrelated steps. The steps were:

1. Preparation: Interview schedule have been prepared. It was consisted of various items that were arranged in relation to each other.
2. Constructing the first draft: while constructing the first draft numbers of items were formulated (including direct/ indirect, closed/open-ended items).



3. Self-evaluation: In the self-evaluation phase all the items were checked with respect to their relevance, symmetry, clarity in language, etc.
4. External evaluation: The first draft was given to experts for scrutiny and suggestions for changes.
5. Revision: After receiving suggestion, some changes were made and some new items were added.
6. Pre-test: A per test was undertaken to check the suitability of the interview schedule as a whole.
7. Revision: The minor and major changes were made on the basis of experience gained in pre-testing.
8. Preparing final draft: After editing, checking spelling, space for response, pre-coding the final draft was prepared.

Quantitative and Qualitative Categories

Keeping in view the need of this study following content categories were constructed.

- I. Image portrayed in serials.
- II. Female character in today serials.
- III. Influence of negative character on the family.
- IV. Effects on child rearing practices, education etc.
- V. Impact on women empowerment.
- VI. Perception of men and women regarding image of women in serials.

Procedure:

The first part of this research began with the printing of several items. Then a random sample of women and men had been chosen to be



interviewed as per the items of interview schedule. Prior permission from each subject was sought individually in order to carry out the study. Rapport was established and they were briefed about the purpose of the study. They were insured about the confidentiality of the information received from them. Once the data was collected, the results were organized and tabulated in order to examine the findings.

When the steps were completed then comparative results of the content analysis as well as quantitative analysis were done to examine if the image of women portrayed in the television serials effect the society or not. Few items of the interview schedule (item no. 2, 3, and 4) were designed to study the opinion of the participants regarding the kind of women's image is portrayed in T.V. serials. Split half method was applied on these items in order to categorize the whole sample into two groups that is PIP (positive image portrayed) group those who believe that women are portrayed positively in T.V. serials and NIP (negative image portrayed) group those who believe that women are portrayed negatively in T.V. serials. T test was applied for finding out the difference in the mean scores of PIP group & NIP group and males & females on structured items of the interview schedule.

Results

The present study attempts to analyze the portrayal of women (Feministic perspective) in the T.V serials and its impact on the viewers of tricity (Panchkula, Mohali and Chandigarh).



Table No.11 Opinion of Negative Image portrayed (NIP) group and Positive Image portrayed (PIP) group on different items of interview schedule

S.N.	Items	NIP/ PIP	Mean	S.D.	t- ratio	P-value
1	Do you get attached to the actress or content of the TV programs	NIP	3.34	1.72	1.82	0.07
		PIP	3.75	1.77		
2	Do you think that women are portrayed as showpiece in TV serials	NIP	1.48	0.61	8.08	.001**
		PIP	2.27	0.85		
3	What do you think women are shown as idealistic in TV serials	NIP	2.67	1.02	3.79	.001**
		PIP	3.12	0.78		
4	To what extent women shown as vamps in TV serials	NIP	7.84	0.70	20.68	.001**
		PIP	5.56	0.95		
5	How much impact do TV serials have on women's lifestyle	NIP	1.63	0.82	3.03	.003**
		PIP	1.98	0.94		
6	How do TV serials impact the unity of the family	NIP	2.16	0.98	2.15	0.03*
		PIP	2.42	0.93		
7	Do you think TV serials affect the interpersonal relations of the family	NIP	2.29	1.00	1.16	0.24
		PIP	2.44	0.92		
8	How much influence do TV serials have on the rituals followed by the families	NIP	1.91	0.86	2.28	.02*
		PIP	2.16	0.84		
9	Do you think TV serials affect children's expectations from their mothers	NIP	1.81	0.83	1.92	.05
		PIP	2.02	0.83		
10	Do you think TV serials affect the husband expectation from their wife's	NIP	2.16	1.02	1.31	0.19
		PIP	2.32	0.94		



11	Do you feel that a TV serial these days are related to social issues	NIP	2.50	1.07	0.08	0.93
		PIP	2.48	0.82		
12	Have TV serials effected your decisions regarding your personal desires	NIP	2.13	0.93	1.00	0.31
		PIP	2.25	0.98		
13	Have role of women played in TV serials affected your decision regarding yourself	NIP	2.03	0.92	1.16	0.24
		PIP	2.17	0.94		
14	Have TV serials affected your financial decision	NIP	2.09	1.04	0.87	0.38
		PIP	2.21	0.99		
15	Do you think TV serials inculcate negative traits in human beings	NIP	2.38	0.97	1.72	0.08
		PIP	2.59	0.95		
16	Does the image of youngsters shown on TV affect your perception about your child	NIP	1.70	0.93	2.57	.01*
		PIP	2.02	1.00		
17	How much violence do you think there is on TV	NIP	2.23	0.94	1.18	0.23
		PIP	2.38	0.96		
18	Do you think TV violence affects the behavior of children	NIP	1.47	0.80	3.49	.001**
		PIP	1.89	1.03		
19	Women empowerment is restricted to only serials	NIP	2.49	1.20	0.03	0.96
		PIP	2.49	1.18		
20	The status of women is improving in all fields due to TV watching	NIP	2.41	1.13	0.77	0.43
		PIP	2.52	1.05		



Table No. – 11 revealed that item number – 1,7,9,10,11,12,13,14,15,17,19,20 did not show any significant difference.

The result indicated that there was a significant difference in negative and positive image portrayed group on item no. 2 which revealed that women were portrayed as showpiece in T.V serials ($t = 8.08$, $p < 0.01$). The mean scores have shown that PIP group believe that women are less likely to be shown as showpiece in the T.V. serials (Mean = 2.27) as compared to NIP group who believe that women are more likely to be shown as showpiece in serials (Mean = 1.48).

With respect to item no. 3 which revealed that women were shown as idealistic in T.V serials ($t = 3.79$, $p < 0.01$) indicated significant difference. The mean scores have shown that PIP group believe that women are more likely to be shown as idealistic in the T.V. serials (Mean = 3.12) as compared to NIP group who believe that women are less likely to be shown as idealistic in serials (Mean = 2.67).

The result indicated that there was a significant difference in negative and positive image portrayed groups on item no. 4 which revealed that women are shown as vamps in T.V serials ($t = 20.68$, $p < 0.01$). The mean scores have indicated that PIP group believe that women are less likely to be shown as vamps in the T.V. serials (Mean = 5.56) as compared to NIP group who believe that women are more likely to be shown as vamps in serials (Mean = 7.84).

On item no. 5 it was revealed that T.V serials impact the women's lifestyle ($t = 3.03$, $p < 0.01$). The mean scores have indicated that PIP group believe that women are more likely to be influenced by women's lifestyle in the T.V. serials (Mean = 1.98) as compared to NIP group who believe that women are less likely to be influenced by women's lifestyle in TV serials (Mean = 1.63).

Item no. 6 showed significant difference which revealed that T.V serials impact the unity of the family ($t = 2.15$, $p < 0.05$). The mean



scores have indicated that PIP group believe that women are more likely to be influenced by unity of the family in the T.V. serials (Mean = 2.42) as compared to NIP group who believe that women are less likely to be influenced by unity of the family in the TV serials (Mean = 2.16).

On item no. 8 it was revealed that T.V serials influence the families to follow the rituals ($t=2.28$, $p<0.05$). The mean scores have indicated that PIP group believe that women are more likely to be influenced by rituals of the family in the T.V. serials (Mean = 2.16) as compared to NIP group who believe that women are less likely to be influenced by rituals of the family in the TV serials (Mean = 1.91).

The result showed significant difference on item no. 16. It was revealed that youngsters image in T.V serial affect the perception about children ($t=2.57$, $p<0.05$). The mean scores have indicated that PIP group believe that youngster image shown in TV serials affected the perception of parents about children (Mean = 2.02) as compared to NIP group who believe that youngster image shown in TV serials affected the perception of parents about children (Mean = 1.70).

Item no.18 showed significant difference in the context of children's behavior affected by the TV violence. ($t= 3.49$, $p<0.01$). The mean scores have indicated that PIP group believe that TV violence is more likely to affect the children behavior (Mean = 1.89) as compared to NIP group who believe that TV violence is less likely to affect the children behavior (Mean = 1.47)



Table12: Mean, SD and t ratios between male and female of 18-25 years age group on different items of the interview schedule.

S.N.	Items	Male		Female		t-ratio	p value
		Mean	SD	Mean	SD		
1	Do you get attached to the actress or content of the TV programs	3.34	1.72	3.75	1.77	1.80	0.70
2	Do you think that women are portrayed as showpiece in TV serials	1.93	0.86	2.37	0.94	-2.20	0.03*
3	What do you think women are shown as idealistic in TV serials	2.50	1.01	2.78	0.88	-1.33	0.19
4	To what extent women shown as vamps in TV serials	5.56	.70	7.84	.95	-20.6	.001**
5	How much impact do TV serials have on women's lifestyle	5.56	.70	7.84	.95	-2.74	0.01*
6	How do TV serials impact the unity of the family	2.05	0.96	2.02	1.01	0.12	0.91
7	Do you think TV serials affect the interpersonal relations of the family	2.43	1.08	2.24	0.83	0.85	0.40
8	How much influence do TV serials have on the rituals followed by the families	1.55	0.71	1.63	0.80	-0.50	0.62
9	Do you think TV serials affect children's expectations from their mothers	1.81	.83	2.02	.835	-1.92	.056
10	Do you think TV serials affect the husband expectation from their wife's	1.83	0.68	1.80	0.75	0.13	0.90



11	Do you feel that a TV serial these days are related to social issues	2.40	1.06	2.56	0.98	-0.71	0.48
12	Have TV serials effected your decisions regarding your personal desires	1.90	0.84	1.95	0.84	-0.27	0.78
13	Have role of women played in TV serials affected your decision regarding yourself	2.33	0.97	2.39	0.77	-0.34	0.74
14	Have TV serials affected your financial decision	2.08	0.80	2.37	1.02	-1.43	0.16
15	Do you think TV serials inculcate negative traits in human beings	1.95	0.71	1.90	0.80	0.28	0.78
16	Does the image of youngsters shown on TV affect your perception about your child	1.70	.938	2.02	1.007	-2.57	.01*
17	How much violence do you think there is on TV	2.15	0.98	2.07	1.03	0.34	0.73
18	Do you think TV violence affects the behavior of children	2.15	1.03	2.32	0.91	-0.78	0.44
19	Women empowerment is restricted to only serials	1.83	0.81	2.05	1.02	-1.09	0.28
20	The status of women is improving in all fields due to TV watching	2.41	1.13	2.52	1.05	.777	.438

Table No. – 12 revealed that item number 1,3,6,7,8,9,10,11,12,13,14,15,17,18,19,20 did not show any significant difference.



The result indicated that there was a significant difference between male and females on item no. 2 which revealed that women were portrayed as showpiece in TV serials ($t = -2.20, p=0.03$). The mean scores have indicated that females believe that women are more likely to be shown as showpiece in the T.V. serials (Mean = 2.37) as compared to males who believe that women are less likely to be shown as showpiece in the T.V. serials (Mean = 1.93).

The result indicated that there was a significant difference between male and females on item no. 4 which revealed women as vamps in T.V serials ($t=20.6, p=.001$). The mean scores have indicated that females believe that women are more likely to be shown as vamps in the T.V. serials (Mean = 7.84) as compared to males who believe that women are less likely to be shown as vamps in serials (Mean = 5.56).

The result indicated that there was a significant difference between male and females on item no. 5 which revealed that TV serials affected the women's lifestyles ($t = -2.74, p=0.01$). The mean scores have indicated that females believe that women are more likely to be influenced by women's lifestyle in the T.V. serials (Mean = 7.84) as compared to males who believe that women are less likely to be influenced by women's lifestyle in TV serials (Mean = 5.56).

The result show significant difference between male and females on item no. 16 relieved that youngsters image in T.V serial affect the perception about children ($t=2.57, p=.01$) . The mean scores have indicated that females believe that youngster image shown in TV serials affected the perception of parents about children (Mean 2.02) as compared to males who believe that youngster image shown in TV serials affected the perception of parents about children (Mean = 1.70).

Discussion

This research study is conducted to analyze the portrayal of women in TV serials (Feministic perspective). The study also contains



research question related to the objectives of study. The results indicated that NIP and PIP group differed significantly on items related to women's image portrayed as showpiece, idealistic, vamps, and items related to the impact of T.V. serials on unity of the family, rituals followed by the families parents perception regarding own child and violent behavior. The results showed that gender significant difference on items related to women's image portrayed as showpiece, vamps and affect their lifestyle, parents perception regarding own child and violent behavior. Rest of the differences were not found to be statistically significant. Hence the proposed hypotheses were partially supported by the findings.

Clothing worn in T.V serials affected the dressing choices revealed the significant difference also show that youngsters affected by the dressing style of actors/actresses. They like to imitate their favorite stars as they want to look like them and also want to look modern and trendy. The result indicated that there was a significant difference that revealed women was portrayed as showpieces in T.V serials. They said that TV changes the traditional dressing into modern dressing sense as well as projected as tools of glamour and fashion in the serials which affect the thinking of the society. The reason being that fashion and glamour has taken the place in our lifestyle and is always the talk of the day hence such projections help the director in getting better TRPs. A similar study by Cooper (1999) reported that 44.74% respondent's opinion that women are portrayed in domestic and decorative roles. The women shown as idealistic nature in TV serials where she projected as simple, intelligent and family oriented.

The result indicates that there was a significant difference which relieved women as vamps in T.V serials respondents said that in today's serials projection of women in negative roles had increased rapidly. They make plans and show jealous nature towards others. These types of roles affect the thinking and perception of society as



they provide ideas to hurt and disregard others, through these the rate of crime increases and pretend that women are selfish. Raksha (2003) revealed that TV serials are portraying negative, limited and derogatory images of women for commercial purpose. T.V serials impact the women's lifestyle mostly of middle age women's because half of the women spend time at home and through the way women enjoy their life in TV serials they try to copy that. These affect shown in their dressing style and social gathering.

The majority of respondents said that TV serials inculcate negative traits in human beings and also affect the perception of parents towards the children as the abuse language was most commonly used and clearly sound in serials. There is aggressive and revenant nature of the youngster, disregard of others as well as more practical towards life instead of emotional well being. The open nature of the young girls and boys were not accepted by the society and parents thought that TV serials gave more importance and courage to youngster towards westernization.

It is evident that women preferred to watch women oriented serials because they see a reflection of their own life experience, since they believed that these depict reality and shows real dimensions of life. Kishwar (2007) revealed that popular Indian soaps are dominated by women characters. The result reveals that women have negative stereotype in most of the serials; they felt that serials are not version of social reality. Most of these serials draw the character of women as a helpless negative creature. They hold the view that women of today are not so pitiable. Though she is fully free and emancipated and she is also portrayed as economically independent to a great extent. Shrivasta (1992) revealed that Indian media portrays in negative stereotypes in daily soaps operas.



It is common belief that the status of women improving through which they gaining confidence and develop leadership qualities. The men felt that women are managing and organizing home and work place. Desai (1996) found that the images portrayed in TV serials have a definite impact on the thought patterns of society and various groups within society. Today's social issues based serials do motivate them to rebel against exploitation and to fight for their rights.

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STATE OF TRIBAL GIRLS' EDUCATION IN VISAKHA TRIBAL REGION OF ANDHRA PRADESH

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Introduction:

Education is one of the element that lays way to development. Development cannot be achieved without improving the literacy levels of communities. In other words, education is an avenue to address the socio-economic problems by which marginalized tribal communities suffering generations together and also helps to uplift the living conditions of the tribal communities' to include them in to the mainstream of life. It not only provides knowledge but also shows way to overcome from typical situations facing in day to day life by any. This is utmost essential means by which individuals and society can improve personal endowments, build capacity levels, overcome hurdles, and magnify opportunities for a continuous improvement in their well-being.

India consists a large number of tribal groups (461 principle groups and 174 sub-groups) with a population of 104,281,034 (8.6%) across the country except in the states Haryana and Punjab. In India, tribal groups are considered most vulnerable, marginalized and deprived communities due to their socio-economic living conditions. The state Andhra Pradesh (united) consists 7% of the tribal population to its total population with 35 different tribal groups. Even today, many of the tribal communities living in the country are do not have the access to the basic needs and facilities such as transportation, shelter, health and education. Education is one of the crucial device for transforming society from nothing to everything. Despite of introducing a variety of intervention programmes and schemes by the



government in the field of education to improve the literacy rates in tribal pockets of India particularly in Andhra Pradesh is not resulting favourably due to various regions. Not considering the local needs while preparing policies at National level. 16 different tribal groups have been inhabiting in the 11 mandals of Paderu tribal region in Visakha district of Andhra Pradesh.

Women and children particularly girl children are considered as most vulnerable groups due to their dependency on other family members in order to fulfil their daily routine needs. This is because of age old traditions and cultural practices together situated women and children at behind. Even today, many of the societies believing the domain of education is not meant for girls but boys. Their role is confined to cooking and taking care of children and household work by men. The distinct ways cultures, traditions, customs becomes barriers to the women and girl children and keep them several steps behind to obtain the education. Even after six decades of independence of India, the literacy rate is 71.70 percent (as per 2011 Census) and women literacy rate (54.40) is lower than men which is worse in tribal pockets especially of tribal women. Women and children are given low social status and dominated by men. Their needs are ignored and not prioritized by any society. Therefore, the role and participation of women and girl children towards development is a big question. The dropout rate of tribal girls is high comparing with dropout rate of tribal boys.

Table -1
Dropout rate of ST boys and Girls in India

Classes	ST(Boys)	All(Boys)	ST(Girls)	All(Girls)
Classes I-V	37.2	28.7	33.9	25.1
Classes I - VIII	54.7	40.3	55.4	41.0
Classes I - X	70.6	50.4	71.3	47.9

Source: Statistics of School Education 2010-2011



From the above table it is noted that the dropout rate of tribal boys and tribal girls are high in each level when comparing with general population. At primary level the total dropout rate is for all boys is 28.7 percent whereas it is higher among ST boys that is 37.2 percent. The dropout rate of girls is 25.1 percent but it is high among tribal girls is 33.9 percent. In the elementary schools section the dropout rate of boys is 40.3 percent whereas it is increased for ST boys (54.7 percent). For girls, the dropout rate stands at 41.0 percent whereas the tribal girls' dropout rate is stands higher (55.4 percent) than general girls' dropout rate. In overall dropout rate general boys and girls for Ist- Xth is 50.4 and 47.9 respectively. But, the dropout rate of ST boys and girls are higher (70.6 and 71.3) than general boys and girls.

History and background of field area:

In visakha tribal agency area 16 different tribal groups namely 1. Bagata, 2. Mannedora, 3. Konda dora, 4.Nooka dora, 5.Valmiki, 6.Khond, 7.Gadaba, 8.Porja, 9.Mali, 10.Kulia/Dulia/Mulia, 11. kondakapu, 12.Konda kammara, 13. Rena/Rona, 14.kotia 15. Agency Goudu, and 16.Reddi Dora. These tribal communities scattered predominantly in 11 tribal mandals 1.Anathagiri, 2. Araku 3. Dumbriguda, 4.Hukumpeta 5. Munchingput, 6. Pedabayalu, 7. G.K.Veedhi, 8. Paderu, 9. G.Madugula, 10. Chintapalli and 11. Koyyuru. In 16 tribal communities 3 tribal communities i.e., Gadaba, Porja and Khond distinguished as Vulnerable Tribal Communities (VTGs). The primary occupation of these communities are shifting cultivation, settled cultivation, Cattle rearing, Horticulture and vegetable cultivation along with NTFP. Among these 16 tribal communities Bagata stands on high and Valmiki stands at low.

Low literacy of Tribal Girl Children of the field area:

Several reasons were identified for low literacy rate and high drop out among tribal girls of this region. They are as given below:

1. Medium of language
2. Physical location of villages
3. Socio and economic conditions
4. Ignorance of parents
5. Administrative
6. Attitude of teachers
7. Lack of proper monitoring
8. Lack of area specific intervention programmes
9. Lack of participation of local communities
10. Security to the girls children

As mentioned above several factors causing for low enrolment and high dropout of students in tribal areas particularly in Visakha tribal agency area. Lack of understanding of regional language 'Telugu' among tribal children is one of the constraint for getting education. In visakha tribal region, many of the tribal groups especially living close to Orissa border and living in remote villages usually speaks 'Adivasi Oriya'. Kuvi or Kui dialect speaks by Khonds and Konda dora speaks in 'Konda basha'. Many of the tribal children are facing difficulties in understanding lessons in Telugu mainly students who are at 1st and 2nd classes.

Rani, M (2000) observed in her study that due to the language barrier the tribal children are unable to establish communication link with the teacher and thus leading to the termination of their education in some point or the other Due to living in remote areas by which these vulnerable tribal children unable to have the access to the educational process. Child marriages, child labour and migration of parents along



with are also severely effects the tribal children education and preventing them from schooling specifically girls' children.

Sujatha, K. (2002) revealed that though education was not a critical demand among Scheduled Tribes, government policy focused on education as the main avenue by which to integrate them into „mainstream“ society. Jha&Jhingran, D. (2002) have strongly advocated the use of the mother tongue or home language as medium of instruction in early stages of education. This assumes greater significance in the context of education of tribal children because their mother tongue is often quite distinct from the prominent languages in the state or regional languages and it is desirable to have a local teacher from the same tribal community. The 'Praitichi Committee Report' (2002) identifies cost of schooling, lack of motivation of teachers, lack of inspection, and the increasing dependence on private tutoring to be the main hurdles in the path of education for tribal children.

Gautam, V. (2004) in his article found that high “dropout” rates among tribal children He analysed that due to wrong medium of instruction, the appointment of non-tribal teachers in tribal areas and communication gap between the teachers and tribal children are the causes of high dropout rates in tribal schools. Nair, P. (2007) has given importance on non-formal education in tribal areas particularly to reach out to the hardest-to-reach group of children in remote areas.

The ignorance of parents towards importance of education is another causative factor that not allowing children to schooling. They do not consider education is essential for their children development. Taking care of siblings, household work, labour works and cattle rearing is quite common doing by children in this region. Unfortunately, most of the tribal parents felt that this is children responsibility to deliver. Moreover, some of the parents opined that girls have to take major role in delivering these responsibilities. This kind of attitude of parents by which girl children are unable to get 'regular' education. Number of



festivals celebrating among tribal groups is another crucial factor. During festivals children do not go to schools that increases irregularity of schooling ultimately leads to dropout of children from schooling process. Remoteness is one of the crucial element along with distance leaves negative impact on tribal children education. During rainy season many of the streams flow across roads in tribal region, therefore, children coming from nearer villages do not attend the school in entire season. This factor initially leads irregularity of schooling and which ultimately make way for dropouts of tribal children. Many of the schools situated in Visakha tribal area are lacking with basic facilities like safe drinking water, toilets etc. pull back girl children from schooling. Due to the distance, some of the parents did not show any interest in sending their girl children to the schooling. Not only this, a few parents not show interest in sending their girl children for schooling after completion of primary education in Visakha tribal region.

Apart from that, administration is one area is leading for poor quality or no quality of education in tribal areas. Delay in supply of books and other writing material, running schools in festivals days, unsuitable curriculum, lack of common understanding among different management i.e., MPP, Tribal Welfare Department, Government Primary Schools etc., in addition to this, teachers attitude in delivering their duties and their irregularity in attending to the schools, lack of infrastructure facilities, lack of proper or no transportation to the schools, low number of teachers, lack of commitment of teaches combine together pulling down the quality of education in visakha tribal area. Multi-grade teaching is happening in most of the primary schools in Visakha tribal area which is another factor for poor quality of education. Lack of proper monitoring on schooling is also crucial element preventing the education to the tribal children. Lack of accountability among teachers leading to irregularity and improper way



of teaching. Moreover, the government policies which is meant for benefiting the tribal students need to change based on suitability to the local environment rather than state or nation environment. Though, there are several intervention programmes like Mid-Day Meals, supply of books etc. these are not reaching properly to the targeted groups. This is the one area can be rectified through involvement and participation of local communities may uplift the enrolment and also leads for providing quality of education to the tribal students of the region. Awareness and orientation camps on importance of education definitely helps for high enrolment and regularity of students to the schooling. Lack of participation due to less involvement of local communities is also effecting in providing quality education to the local tribal children in this region.

Suggestions and recommendations:

1. Teaching in local dialects (Multi Lingual Education) definitely helps for high enrolment and regularity of students and also that creates interest on education among tribal communities
2. Relevant curriculum is need to prepare that keeping local communities in view
3. Literacy campaigns is also very useful for creating awareness on the importance of education among tribal parents in tribal areas shall improve enrolment of students
4. Proper periodical monitoring on teachers, teaching methods, regularity of teachers and functioning of intervention programmes like MDM surely improves in providing quality of education and also may change the attitude of teachers towards delivering of duties
5. Sufficient number of teachers appointment is also necessary and helps to provide quality of education to the tribal children



6. Proper implementation entitlements of Right to Education Act 2009 definitely improves quality of education and high enrolment of children in respective villages
7. Proper functioning of school development bodies i.e., School Management Committee's PRIs assistance to be enhanced for continuing schooling
8. Local social disparities among different tribal communities to be eliminated for social equity and equal rights which ultimately leads path for sustainable education
1. Proper implementation of RTE Act 2009 entitlements in tribal areas also helps for improving the schooling.

Conclusion:

Low literacy rate is noted in tribal areas with specific to visakha tribal region of visakha district in Andhra Pradesh due to a variety of socio-economic, cultural regions. low participation of communities, poor monitoring of administration bodies, teaching in regional language to the local tribal children, few cultural practices like taking care of siblings, household work, cattle rearing is also becoming hindrances for tribal children particularly for girls schooling. By preparing appropriate policies at region specific with suitable solutions in this region definitely improves the enrolment and also quality of education. Conducting literacy campaigns at village level not only enhances the regularity of students but also increases enrolment of tribal children through creating awareness among tribal people. Apart from that, teaching in local dialects is also very helpful in increasing of enrolment and participation of tribal children in schooling.



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GIRISH KARNAD'S THE FIRE AND THE RAIN AN AVARICE FOR POWER AND POSITION

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Girish Karnad's English-translated play *The Fire And The Rain* is a continuation of his portrayal of contemporary reality. He cogitated and worked on it for thirty seven years. He finally produced it in 1998, when the prestigious Guthrie Theater of Minneapolis, USA commissioned him to write a play for them.

Girish Karnad took this story of Yavakri and Parvasu from C.Rajagopalachari's abridgement of Mahabharata. In the words of Karnad:

.....that Rajaji, confronted with the stupendous task of abridging the world's longest epic to about four hundred pages, should not have discarded this seemingly peripheral tale is a tribute to his sensitivity and judgment¹.

Karnad presented modern India through a tale from the Mahabharata. He exposed modern man's greed for power and position through the traditional story, *The Fire And The Rain*. He pointed out how yagnas are useless without goodness. Karnad explored modern India through traditional society.

The Land is gripped by drought, there is no adequate rain for nearly ten years. The King arranged a seven-year long Fire- sacrifice (*Yajna*) to propitiate Indra, the god of rains. The whole fire- sacrifice is surrounded by priests where Parvasu is the Chief Priest. It is his responsibility to see that there are no errors, either of omission or commission in the course of the sacrifice. All the priests desire to watch a play in between the sacrifice, in order to avoid boredom.



The king says that he is not disagreeing to their proposal, but the chief priest would not agree for one actor to enact (Arvasu, younger brother of the chief priest Paravasu), since he was not an actor by birth. Actor-Manager approaches Paravasu and discusses the genesis of the drama. That Brahma, the Lord of all creation, gleaned appropriate elements from the four Vedas and combined them into a fifth Veda which led to the origin of art of drama. And he passed it to his son, Lord Indra, which he in turn was handed over to Bharata, a human being, since Gods could not indulge in pretence. He says that sacrifice is not enough to bring rain and a play has to be performed along with the sacrifice to satiate Lord Indra.

The courtier says that there are not enough actors to stage a play, so they want to bring Arvasu, as an actor and there would be no play without him.

At last paravasu accepts to stage the play with the advice of the king. The play is about to be staged; Arvasu talks to himself and reminisce the past events. The whole play is narrated by Arvasu in a flash-back technique

Arvasu loves Nittilai a girl from the hunter tribe. He wants to marry her and she advises him to meet her elders. Both Arvasu and Nittilai are good human beings. One their way to nittilai's village they meet Andhaka, a blind man who is a Sudra by caste and a guard at the hermitage of Yavakri's father, and he exclaims that he is heartened by their news.

Yavakri, who once loved Visakha now wife of Paravasu, stands in the middle of her path to talk to her.

Finally Yavakri attempts to lure visakha which culminates in their union. They are disturbed by Arvasu, who comes there along with Nittilai to meet Yavakri. Visakha runs to the hermitage and Arvasu follows her carrying the water pot. Visakha is surprised to see Raibhya,



father of Parvasu who was out of station but had returned in advance. He asks both Visakha and Arvasu, in askance as to what had happened. But both are mum and when he starts beating Visakha, she replies that Yavakri had come there to see her. Raibhya speaks in an enraged mood.

Raibhya sinks into deep meditation. He invokes the 'kritya' and creates a Brahma Rakshasa to kill Yavakri. He tells Visakha that if Yavakri wants to escape from Brahma Rakshasa, he has to hide in his father's hermitage, who happens to be Raibhya's brother. And he says if Yavakri escapes from Brahma Rakshasa within one day, he would accept his defeat and enter the fire. This proves that even highly learned people are not free from extreme emotions and hatred.

Visakha and Arvasu run to Yavakri to inform him about the impending danger. Arvasu runs to the hermitage and Visakha towards the hills. Visakha informs of the danger to Yavakri and asks him to go to his father's hermitage. Yavakri says that he abhorred parvasu's family because his father deserved the post of chief priest which was offered to Parvasu.

Yavakri says that he went to the jungle to do penance in order to get knowledge. It is only to take vengeance on your family, because the honours due to his family were grabbed by Raibhya's family.

Yavakri tells visakha that he had intentionally lured her only to take vengeance on her family. He had asked Arvasu to come to that place at that time and with his power he had brought back Raibhya. Yavakri tells Visakha that her father-in-law will meet his death and wants to see what her husband will do, and questions whether he will seek refuge in the ritual world.

Visakha holds his Kamandala containing sanctified water, which Yavakri had sanctified to kill Brahma Rakshasa, Visakha, pours out the water. Yavakri is surprised at her behavior and he cries out for a drop of water. Visakha pushes him aside and asks him to go to his father's



hermitage, when they hear the terrifying wail of Brahma Raksha. Yavakri runs towards it, and Brahma Rakshasa runs after Yavakri, who has reached his father's hermitage. He was stopped by Andhaka and when he was about to enter the place Brahma Rakshasa comes and spears him. Yavakri collapses in Andhaka's arms as Arvasu comes and watches the scene with horror. Andhaka later recognizes him as Yavakri and repents for having stopped him.

Arvasu arrives late at Nittilai's village to attend the council conducted by her father and the village elders. When the council has concluded he meets Nittilai's brother who informs him that Nittilai's marriage was fixed with another person due to his late arrival. Arvasu pleads with him to give him an opportunity to meet their elders so that he could touch their feet and explain the reason for his inordinate delay. He told him that Yavakri was dead and he had cremated his body. Nittilai's brother did not accept his proposal, not even to meet Nittilai. He kicks Arvasu and asks him to return.

One night Parvasu, the Chief Priest of sacrifice comes home and the whole family Raibhya, Visakha and Arvasu are surprised to see him. Since the chief Priest should not leave the sacrifice, mid-way and should be there till the completion of the ritual Raibhya scolds him for breaking the rules.

Visakha confesses to Parvasu that her fornication with Yavakri brought him back from the fire sacrifice. She says that there are resemblances between Parvasu and Yavakri, both have gone, when they feel it and came back without an explanation, though they did for the sake of Lord Indra.

Visakha asks Parvasu regarding his silence and requests him to kill her. She takes his bow and arrow, puts them in his hands with the arrow pointing to herself. She lies down on her back in front of him. At that moment Raibhya is about to enter the house, and coughs gently



when Parvasu shoots an arrow in that direction. Raibhya who is hit by the arrow collapses without a sound. Visakha looks surprised and Parvasu explains that his father deserved to die since he had killed Yavakri only to disturb him in the last stages of sacrifice.

This shows the hunger for power, even within the family members, who went to the extent of murder. Arvasu comes home and sees the dead body of his father when Parvasu says that he mistook the father to be a deer and had killed him. Arvasu starts sobbing but Parvasu asks him to stop wailing for, if any one notice, the sacrifice will be ruined and he would have to go back immediately.

Parvasu asks Arvasu to cremate the body and perform the penitential rites. Visakha requests Arvasu not to do that, since he had killed his father and to let him atone for it. But Arvasu agrees to if for the sake of the sacrifice. Parvasu blesses Arvasu and leaves for the sacrifice.

Parvasu on his way to the sacrifice is obstructed by Brahma Rakshasa who asks Parvasu for his release from this state, as he wants to vanish from existence. Brahma Rakshasa tells that they both are brothers, because Parvasu's father had given him a new birth. Parvasu says that he won't help any one and leaves for the sacrifice, Brahma Rakshasa follows him.

Arvasu completes all the penitential rites and goes to the venue of the sacrifice. Parvasu observes Arvasu and asks him as to where he is coming from. Arvasu says that his father was killed by his son. Parvasu blames Arvasu and asks the guards to throw him out.

A couple of soldiers come and drag away Arvasu. Parvasu foisted the patricide on Arvasu, which points to the power politics among the priestly class, for the post of Chief Priest.



The Actor-Manager informs Arvasu that Nittilai had nursed him like a baby and she is also providing food to his family, for every time she goes to the wood and brings something to eat. Actor Manager says that they came here to perform the play for the sacrifice, but it is their bad luck that their old man had died and his brother's foot got infected. Arvasu tells the Actor-Manager that he cannot give up his performance for it is his duty to art.

The Actor-Manager persuades Arvasu for a role in their troop. Nittilai comes and informs that she has seen her brother and husband when she had gone for fruits, so she will go to the wood and will hide there. Arvasu informs Nittilai that he is going to act in the Actor-Manager's play when the Actor-Manager says that he has made the perfect choice for the fire sacrifice, that is "The Triumph of Lord Indra". The play is about the struggle between Lord Indra and the demon Vrita.

Actor-Manager says that he is going to play the role of Indra and Arvasu that of Vrita. Nittilai philosophically says that she did not like Indra because he is immortal and she likes Vrita because he chooses death.

The Actor-Manager gives the mask of the demon Vrita to Arvasu and asks him to pour life into it. He advises Arvasu, the he should have a tight control over it, or else when he poured the life it would try to capture him. All this story till now as told by Arvasu was in a flashback method as has already been mentioned. It is now that the actual drama commences. The play within the play is about to begin. The audience including Parvasu and the king occupy their seats and watch the drama, to be enacted at the fire sacrifice. Arvasu who plays the role of vrita shouts and dances on the stage. Another actor in the role of Vishwarupa enters from the outside and they both exchange their exchange their love and affection.



The Actor-Manager, who is in the role of Indra watches from a distance while talking to the audience. His father Brahma, the Father of all creation assured him that will be the lord of the three worlds. But his father fell in love with a woman from the human world who bore him a son named Vishwarupa. His father made him the king of the human world. Vishwarupa's wisdom and mastery of the lores draws wide appreciation. Indra thinks that his name and fame may threaten his own sovereignty, and so he wishes to destroy him. At the same time Brahma fell in love with the woman devil from the nether world and demon Vrita is their offspring. Brahma asked Vrita to protect his brother Vishwarupa fearing that Indra may harm him and separate them.

Indra comes to Vishwarupa and invites him to the fire sacrifice, which he is going to conduct in memory of their father. Vishwarupa honours his invitation and asks Vrita to follow him, when Indra says that demons should not enter the sacrificial precincts. Vishwarupa tell Indra that vrita is their brother, but Indra utters that rules are more ancient than human beings, one cannot tamper with them. So Vishwarupa asks Vrita to remain outside, but Vrita decides to protect Vishwarupa abd tells that gods should never be trusted. The meanings of gods' words are quite different from the meanings that humans attach to them.

Vishwarupa enters the sacrificial pavilion and offers oblation to the gods as directed by Indra. Indra silently moves behind Vishwarupa and plunges his thunderbolt into his back and Vishwarupa screams. Parvasu who is watching the play moves heavily in his seat.

Arvasu, who is in Vrita's mask imagines himself to be Vrita, and recollect the treachery done to him by his brother. He attacks Indra with ferocity, and the Actor-Manager in the role of Indra tries to escape. Vrita chases him and threatens to raze the befouled sacrifice to the ground. The villagers, who are watching the scene from the crowds,



get up and start rushing into the burning pavilion and actually raze the sacrifice to the ground. The king seeks advice from chief priest Parvasu who has been watching the chaos silently, calmly walks into the blazing enclosure.

Nittilai comes hurriedly to Arvasu and removes the mask. He regains his normal position and regrets his unintended action. Suddenly Nittilai's brother and husband step out of the crowd and rush towards her. Nittilai's brother knocks down Arvasu and pins him to the ground. Her husband pull out a knife and slashes her throat. Arvasu rushes to her and takes her in his arms, as she lies bleeding and dying like a sacrificial animal.

Arvasu lifts up Nittilai's body and goes into the sacrificial place which is still burning and stands inside the flaming structure. The fire slowly dies out and the voice of Indra is heard from the skies. Indra tells Arvasu to ask for a boon and Arvasu replies that he will seek only death.

Arvasu says that he wants Nittilai alive. Indra says that it is not such a great thing to regenerate Nittilai.

Arvasu asks Indra whether he could liberate Brahma Rakshasa from bondage, Indra replies that he cannot have both ways and adds, he can grant Brahma Rakshasa's release, but it may not work because even the gods cannot guarantee the ultimate release of the soul, in that case his chance is over and he will lose Nittilai also. Arvasu tells Brahma Rakshasa who had also listened to the words of Indra, that he cannot do that and forgive him, Brahma Raksha says that Arvasu is a human being and capable of showing mercy. He can feel pain and suffering which the gods cannot.

Arvasu asks Brahma Rakshasa to leave that place. Brahma Rakshasa says that if Nittilai lives again she will live a tormented life,



when she comes to know that the life she is leading will not enable him to be released from bondage.

Arvasu cogitates and silently asks Indra to grant Brahma Rakshasa's release as Nittilai would have wanted it so. He sits down and clutches Nittilai's corpse, while Brahma Rakshasa cries out in triumph.

The crowds who are watching the scene say that there is a smell of wet earth and it is raining somewhere. The wind blows, there is lightning and thunder, and it is raining. Suddenly the Brahma Rakshasa roars and melts away. Rain pours, people dance with joy and roll in the mud.

According to Girish Karnad, *The Fire And The Rain* is the most complex play up to now². It is his debunking the cultural order wielded by the Brahmins as had been referred to earlier in *Tale Danda*. All his plays beginning from *Tughlaq*, *Hayavadana*, *Naga Manadala*, *Tale Danda* to *The Fire And The Rain* have mirrored contemporary India in its totality.

The play has been built around human passions and frailties like pride, hatred, jealousy, hypocrisy and desire to destroy. It also depicts the undercurrents of human nature as to how life is composed of suspicion and innocence, goodness and evil.

The Fire And The Rain is a play of jealousy and revenge which finally leads to destruction and condemnation:

Jealousy is a natural and necessary evil which destroys everything. It has no boundary of caste, creed, sex and nation. It is a natural human weakness, which stings man's mind, intoxicates him in a fit of madness and finally leads him to ruin and death. We can visualize the face of jealousy in man and woman, father and son, brother and brother and wife and husband.³



The story of Parvasu and Arvasu is the story of every home of modern society. Evil still continues with a sharper sting and intoxicating madness in the hearts of people today.

The title is symbolic in that the 'Fire' is not simply that of sacrificial but also that of human passion, while the 'Rain' is that of forgiveness and benevolence. The title of the play also has the twin connotations of ritual sacrifice of fire in order to bring rain and the metaphysical sacrifice of baser passions in order to bring about peace, serenity, solace, and enlightenment. Thus the title itself indicates the focus of the play.

Girish Karnad internationally acclaimed playwright delivered a message on the mythological origin of drama of ITI International theatre Institute-UNESCO. In this message he passed some significant comments on Indian theatre:

That is why theatre is signing its own death warrant it tries to play too safe. On the other hand, that is also the reason why, although its future often seems bleak, theatre will continue to live and to provoke⁴.

Girish Karnad as a true playwright and actor, bemoans the decline of drama. In *The Fire And The Rain*, he is pleading for the revival of the drama for the benefit of mankind. In the play, he had linked drama with a ritual and the former attained preponderance over the latter. Shanta Gokhale, a drama-critic, ends her review of *The Fire And The Rain* in the statement :

Actually this play cannot be reduced to an indoor performance. It should really be annual ritual enacted under open sky by actors with resonant voices and large impressive presence. It is time modern theatre has its own ritual⁵.

Through the Actor-Manager, Karnad urges that the actors should be given monetary benefits for staging the plays. Karnad admonishes actors like Arvasu, that they should get rigorous training



before acting. Arvasu due to lack of training, misled himself. Subramanian comments that,

The actor who wears the mask becomes possessed by the spirit of the character in *The Fire And The Rain*.⁶

Nittilai and Arvasu are embodiments of goodness and sacrifice. Nittilai is the mouthpiece of Karnad, and castigates the present social order. The love between Nittilai and Arvasu shows the caste-conflicts which are still prevalent. The two queries posed by Nittilai were whether Yavakri can create rain and whether he can forsee his own-death, point out the basic questions of any knowledge concerning reducing the suffering and a prognosis of the future. Yavakri's knowledge is useless for both the purposes, it also points out his fall, even though Nittilai asks the questions innocently they offer a counterfoil to the whole theme like other plays. P.Dhanavel is of the opinion that:

Nittilai is one of the most admirable characters of Karnad. She faces all the suffering for Arvasu and makes him a real human being with a better understanding of life.⁷

Interestingly, it is a simple character like Arvasu who offers the solution. It is only goodness which results. He implored Indra for the deliverance of Brahma Rakshasa. As the very title indicates, the Fire is a token of human passion and the rain is the epitome of compassion. Ultimately the latter triumphs over the former. The title is symbolic in that it is based on opposites. The larger understanding of life and the love towards other human beings is the real rain, redeeming mankind.

Nittilai is the epitome of goodness, she saved the Actor-Manager's family from starvation. It is she who made Arvasu, into a true human being. She deserted her family for the sake of Arvasu, and as a sincere, spouse she wants to remain loyal to her husband.

Arvasu, is a replica of Nittilai in goodness and it is she who had nurtured his good qualities. Even the gods appeared for his sacrifice



and not for the ritual. Arvasu desires nothing for himself except the restoration of life of Nittilai but at last decides to help the Brahma Rakshasa by abandoning the fabulous opportunity that is retrieval of Nittilai life. This kind of open mindedness and simple self sacrifice elevates him far above his father, brother and Yavakri. It seems that knowledge and compassion need to go together, yet if often happens that knowledge results more in destruction than in benefitting the world.

The play reveals that both divine and demonic qualities are latent in human beings themselves. It is only by the sacrifice of demonic qualities that man becomes divine which is effectively evocated in the play and the title. The predominant message conveyed by the dramatist is that, more important is the cleansing the soul of impurities and the fire of passions than the conducting of ritual exercises.

The Fire And The Rain is Karnad's projection of modern India. Even in present society there is a struggle for power and in the process innocent people are suffering. Karnad exhibited the murky state of affairs of existing society through a traditional tale from the Mahabharata. He deftly connected a link between traditional and modern India. He displays social ills that have been plagueing Indian society down the centuries in the guise of rituals.

At last the sacrifice recedes into the background and human play acquires more importance. The play is elevated to the struggle of human passions and motives using the characters as a backdrop. The so called rituals and knowledge fail to bring rain. It is out of the sheer goodness and sacrifice of Nittilai and Arvasu that the rain comes down.

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LISTENING SKILLS IN LANGUAGE LEARNING: A STUDY

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Introduction

Listening is the foremost of the macro skills to be developed as a means of effective communication in first and second language learning context. Listening is a skill which begins to develop from infancy although the skill gets refined over the years. Listening to and comprehending information is an essential step in acquiring knowledge. Listening comprehension plays a vital role in the early stages of language instruction and it is crucial for a child to develop good listening skills in order to cope with the demands of school. This study focuses on how to increase listening competence for Telugu speakers of English at primary school level.

Objectives of the Study

- The purpose of this study is to investigate the importance of each of the four language skills in relation to and with emphasis on listening
- To focus on the importance of listening skills in language learning at primary level and how listening skill can be inculcated right from childhood.

Global perspective of English:

English at present is one of the most widely spoken and written languages worldwide, with an estimated 400 million native speakers. People who speak English as a foreign language are estimated to be over a 700 million. Undoubtedly, the popularity of the language has



termed English as the international language of business, science, technology, computing, medicine, aviation, banking, engineering, tourism and so on. The significance of English cannot be undermined as it is one of the most popular language of the world.

In this era of globalization to face the competition and mark an enviable place for oneself on an international or even on a national level, one needs to empower oneself with the right knowledge and correct application of English.

Students' success is largely determined by their performance in subjects like Mathematics and Science. Unfortunately other subjects like languages – especially English – are completely overlooked and not given their due importance. The current scenario demands us to shed the age old beliefs and understand that good communication skills and confidence is the need of the hour. A child may be deft at solving arithmetic operations, but may not be capable of explaining them effectively and communicated his ideas with clarity. English being a universally accepted language, it becomes all the more important to acquire, develop and enhance the language skills, especially the listening skills without which the other three skills cannot be expressed in their fullness.

The fact about English language is that it has become one of the major languages of the world and one can neither ignore the importance of English language nor can neglect the learning of it. No other language in the history of the world has spread more widely or has been used more extensively other than English. It is the most widely spoken language.

Importance of English language in India:

India is a vast country with different languages in different parts of the country and without a common language it is not possible to communicate with people of other regions with as many regional



languages not to think of several dialectical variations within a language present in the country. English proved the only common language understood by most of the people across the country. In addition to Hindi, our national language mostly all schools and colleges teach English as a medium of instruction.

There is an urgent need for a common language which can be understood by people all over the primary level so that the common language becomes a unifying tool in bridging information gaps in bringing people together and unifying the country. The world is making progress in the field of science and technology at a tremendous speed and to increase and encourage more research work in the fields of science and technology, knowledge of English is very much essential. Most of the best books available are in English and therefore knowledge of English can only prove to be a blessing.

India is on the road to become a strong and prosperous nation and learning English from the primary level is of great help for our technicians, mechanics and engineers to progress in their respective fields, for better expression and communication of ideas and also to keep pace with the fast growing world outside.

The four skills of language and their importance in language learning.

Learning a language means learning the means by which a thought an idea, an emotion, an experience is conveyed or communicated. So language is a medium or tool and the mastery of the tool comes with practice in the use of it and therefore, language is spoken of as a skill subject and not a content subject.

The four skills or abilities that comprise the mastery of a language are i) listening ii) speaking iii) reading and iv) writing. The four skills are referred to as LSRW and all the four skills go, obviously, with understanding, without which no language can be used effectively.



Moreover without listening no speaking is possible, so in order to speak, one has to listen. Similarly, without reading, no writing is possible, so one has to read in order to write. So it can be said that the four skills of language go in pairs.

Listening and reading are relatively passive or receptive or perceptive in character and speaking and writing are more active or productive. In reality all the four skills interact with each other to produce the synergic effect called language. So in teaching English, all the four aspects are important because listening is said to be the foremost of the four macro skills in learning a language and paves the way for the development of the other three skills- speaking, reading and writing.

Skill of listening: Listening is accepted as one of the most effective modes of learning. If students acquire listening skill properly, they can easily learn the other three skills of language learning there is no communication without listening and hence listening is said to be the most essential skill in the process of learning a language.

Skill of speaking: Language is primarily speech and listening and speaking are interdependent. The ability to speak effectively is the ability to convey the message correctly using appropriate vocabulary in out day to day life in different contexts. That is to say, one should be able to – produce English speech sounds correctly.

- Use appropriate stress and intonation patterns
- Select language appropriate to the context while communicating with others.

Skills of reading: Reading is a receptive skill in the written mode and of all the language skills it open up before us a new world of experience. Reading implies reading with comprehension. Reading comprehension involves understanding the meaning of content vocabulary, structure,



concepts and ideas. Learning a second language presents quite a different set of difficulties to the learner and so reading should be started only when the learner has been given thorough practice in listening and speaking skills.

Skill of writing: out of the four skill in language learning, writing is a skill that serves as a medium through which we communicate our ideas, thoughts or feelings to others. skill of writing is to be taken care of as out learners are expected to develop this skill as early as possible as they consolidate what they have learnt to read by writing down answers to questions, write small paragraphs, writing at a test or an exam.

Problems that are faced while teaching English at primary level.

No clear cut aims and objectives:

There is a general lack of clarity about the aims and objectives of teaching of English in India. Teachers teach English since it is included in the syllabus and students learn it as they will be examined in it and therefore English is learnt as a knowledge subject and not as a skill subject.

Over Crowded classrooms:

Teachers of English face the problem of handling classes of about 50 to 60 student and it is difficult to pay due attention to individual students as this is very much essential in an English class.

Inefficient Teachers:

The teachers of English at primary level are not specifically trained in teaching English. The foundational years for the teaching of English in schools are in the hands of teachers who neither know



enough English nor are they familiar with the latest development in teaching English.

Inadequate provision of teaching aids:

Most of the teaching is done in schools without the help of any teaching aids. There is no provision for audio- visual aids which are very essential to teach English in the classroom.

Imported methods of teaching:

We have been using only imported methods for teaching English in a country like India. Most of the methods advocated are fabricated in monolingual countries and they are not effective in a multilingual context. We have not evolved our own methods based on our own experience and local wisdom.

Examination centred Education:

The present education system is based on memorization and reproduction of what has been taught. It does not test the learner's competence in English.

What can be done at the primary level to help learners learn English better.

While learning a second language learners face a number of problems

- Owing to the difference between the sentences structures of their mother tongue and English.
- Owing to the differences in some sounds of the two languages – mother tongue and English.
- Lack of exposure to the language in school and at home.
- Lack of proper teaching learning material for effective learning of the language.



Learning a language involves learning the skills of listening and understanding, speaking, reading and writing and so teachers can help students learn English by having certain objectives on mind.

Make learning of English an enjoyable activity.

To achieve this,

Learning of English has to be made as easy as possible by bringing into the classroom a variety of activities that create interest in the learners-like listening games, Story Telling, role plays phonic drills and so on.

To help pupils speak English.

To achieve this,

- The learners have to be given practice in producing the characteristic English sounds correctly. For example (V and W), and so on.
- Help the learner use correct word stress, sentence stress and basic intonation pattern for correct pronunciation.
- Encourage the learners to participate in role plays, oral drills, simple dialogues and so on.

To help learners read English and understand

To achieve this,

- Learners should be encouraged in reading word phrases and sentences, acquire speed in reading by practicing silent reading and also by guessing the meaning of new word in the context.

To help pupils write in English

To achieve this,



- Learners have to be encouraged to write neatly and legibly with correct shape, size and spacing by learning the mechanics of writing.
- Making use of pictures, drawings cartoons, charts, maps and diagrams to provide a stimulating focus for getting the attention of children so that they are encouraged to write sentences and arrange them in logical order.

Developing listening skills at the primary level.

Listening skills are arguably the most important of the four language skills that are crucial to the academic and social development of the child. In order to succeed in future academic pursuits, primary school students must be able to listen to and comprehend their teacher's instructions. And so great emphasis has to be laid on the development of listening skills so as to inculcate good listening skills right from the childhood.

To achieve this objective, learners have to be provided with lot of opportunities to develop their listening skills. If learners acquire the listening skills properly, they will find the learning of other language skills fairly easy. Parents and teachers must seize every opportunity to offer plenty of natural input to enhance the listening competence of the children.

In order to teach listening skills, teachers need to:

- Explicitly model how to be good listeners.
- Provide spaces in the classroom that encourage conversation and attentive listening.
- Develop the physical environment of the classroom as it is important that the classroom environment is supportive and nurturing.



- Provide authentic material for listening and speaking.
- Provide a listening corner in the class with CD player, CDs and head phones.
- Provide puppets, felt boards and toys to retell favourite stories in the class.

Although children learn a language faster than adults, they do not learn it through traditional language teaching methods. Through fun activities children can learn a language better as learning becomes natural for them. In order to appeal to young learners SONGS, RHYMS and GAMES can be very effective tools for teaching English. 'It has been said that children have a natural taste for music and because of that English language teachers around the world use such enjoyable and supportive means for children to improve language learning and acquisition.

SONGS: Songs can be motivating for students to repeatedly listen to and imitate them. Songs are authentic and easily accessible examples of spoken English. According to Hornby (1990), song is a piece of music with words that is sung. Song is also a great language package that bundles culture, vocabulary grammar and a host of other language skills. It's great to use songs in the class, if only to do something a little differently. Songs can be used in the classroom to consolidate what students have already learnt. Instead of doing the usual listening comprehension out of the course books, a variety of exercises can be done with songs. Filling the gaps, true or false, matching exercises are some of them. A song with clear rhyme pattern can be used to do some phonetic work on particular phonemes.

Rhymes: It is only natural for young children to be active, as it is in their nature to be energetic and playful. Action rhymes captivate young students and help teacher convert their natural energy and



enthusiasm into meaningful learning experiences. Many primary level learners respond well to rhymes.

Some of the reasons may be the rhythm, the repetition and most importantly the fun involved in rhymes, get children naturally drawn to rhymes. For example, the rhythm and physical action involved in action rhymes like 'Head and shoulders, Knees and Toes' provide fun drills of vocabulary for parts of the body. These kind of rhymes also involve lots of repetition which is very effective in children's language class as children love to repeat and mimic words and sounds.

Games: Just like songs and rhymes, games also provide wonderful atmosphere in the children's language class. The reason why games are so useful is that games make learning fun. Students pay more attention because when they enjoy themselves they do better and feel better.

- 1) **Simon says:** Simon says required players to listen closely to the speaker's directions and avoid being 'out'. This game can help sharpen primary school children's concentration and listening skills as they have to play close attention to subtle details.
- 2) **Barrier games:** Barrier games are simple procedures based on giving and receiving instructions. These games also require children to listen carefully while receiving instructions from their partners.
- 3) **Riddles:** The teacher may devise a number of riddles coinciding with the academic level of the students to enhance listening skills.

Story Telling:

Engaging in story telling activities is a way to motivate even the most reluctant of learners. Story telling is defined as relating a tale to one or



more listeners through voice and gestures “(National council of Teachers of English, 1992). Stories provide students practice in listening. This is the most enjoyable way of giving students listening practice and the necessary exposure to spoken English and learning new words. To make story telling more interesting teachers have to be as dramatic as possible so that children learn to recognise how tone, volume and body language create suspense, interest and enjoyment. According to Isabel et al (2004) story telling tends to use more repetition, sounds and communalities. It is an effective strategy that incorporates the aesthetic ways of knowing into instruction. In addition to improving the academic performance of the students, story telling also motivates children to connect with their learning.

Using song, and rhymes is a time tested method that has proved its worth for generations. When children sing and recite, they automatically learn the use of prosodic features of English – stress, rhythm, intonation, syllable length and pause- which constitute speech. In addition, most of the songs and rhyme, have in-built pattern practice since they repeat the same sentence pattern without the monotony of the oral drill.

Conclusion:

Listening is an important language skill and yet the most neglected skill in our classroom.

In the 80% of our waking hours about half of the time is spent in listening. Yet, looking at our school experience, education concentrates on reading, writing and speaking but neglect listening. (Steil, et al 1982). It is neglected not because we do not recognise its importance but because we take it for granted that learners automatically acquire this skill without any special training. We assume that we give them enough practice in listening in our classrooms through our expository methods of teaching. But the matter is not as simple as it appears to be



listening is a complex operation integrating the distinct components of perception and linguistic knowledge in ways which are at present poorly understood (Haycraft, 1986).

Listening skills develop much before the baby is born. During the third trimester in the prenatal development, the brain of the foetus continues to make strides. The foetus responds more clearly to sounds in the external world. By 28 weeks, foetus blinks the eyes in relation to nearby sounds and in the last weeks of pregnancy, they learn to prefer the tone and rhythm of their mother's voice.

New born in fact can hear a wide variety of sounds, they are more responsive to sounds within the frequency range of the human voice and specially respond very well to their mother's speech.

When a child learns mother tongue, the first action of the process begins with listening to the words uttered by its mother, father and other members of the family. Mother utters the words and child tries to imitate them. It is a clear indication that unless listening skills are developed first, it is not possible to develop the speaking skills.

Listening is the foremost of the four macro skills to be developed as a means of effective communication in first and second language learning context. It refers to one's ability to register, process, recall and make sense of what is being said and it is crucial for – child to develop good listening skills in order to cope with the demands of school.

Listening to and comprehending information is an essential step in acquiring knowledge. It is a skill which begins to develop in infancy although it can be learnt/ refined over the years.

Listening comprehension plays a vital role in the early stage of language instruction and is a multistep process which needs the guidance of parents, teachers and society as a whole in young learning environment. Only then do they develop the ability to listen in order to



make sense of their environment. Listening skills are vital to communicate with others. To be able to communicate well and make ourselves understood is essential as people with good communication skills have more chances of employability in the age of globalization. These skills cannot be mastered over a short span but over a period of time through practice and application and the best time to lay emphasis on good communication skills is at the primary level.

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TOTAL QUALITY MANAGEMENT SYSTEM IN HIGHER EDUCATION

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INTRODUCTION:

Total Quality Management:

The term of Total Quality Management (TQM) was developed by Feigenbaum, in 1961, who named it firstly as Total Quality Control (TQC). TQM can be defined as “the process of integration of all activities, functions and processes within an organization in order to achieve continuous improvement in cost, quality, function and delivery of goods and services for customer satisfaction”. TQM models, based on the teachings of quality gurus, generally involve a number of “principles” or “essential elements” such as teamwork, top management leadership, customer focus, employee involvement, continuous improvement tool, training etc.

Total Quality Management is a management approach that originated in the 1950's and has steadily become more popular since the early 1980's. Total Quality Management (TQM) is a management concept coined by W. Edwards Deming. The basis of TQM is to reduce the errors produced during the manufacturing or service process, increase customer satisfaction, streamline supply chain management, aim for modernization of equipment and ensure that the workers have the highest level of training.

Globalization issues have triggered the move to ensure quality, and Higher Education Institutions have been quick to adopt quality models in order to survive in the increasingly global market. According



to Kanji and Tambi (2002) leadership is the main key and pillar of TQM implementations in higher education. Also, it seems to be the most important factor to influence the success of the quality in higher education (Becket and Brookes, 2008). Hence, TQM and leadership cannot be treated separately and go hand in hand.

Total Quality Management has superiors compared to the classical education approach in the development of education system and in educating qualified personnel whom answer the contemporary expectations of the individuals. Total Quality Management creates an opportunity to the development of the educational system. The personnel who are needed by the businesses and the modern world will be possible with the continuous development of the education system. It is not possible with the closed traditional system to keep pace with the amazing development in the world. The improvement of education system with Total Quality Management will cause the production power of a country to increase. The educational works which are connected to the research can be supported with TQM for the purpose of solving problems. It is needed to be prepared to the awards processes to increase the participation to the TQM applications. It can be advised to give education, research, development and motivation to internalize the Total Quality Management. In addition to this it can be advised to compare the institutions which are using TQM and institutions which are not using. The businesses will catch the social change in the modern world market and they will compete with the other markets by TQM. TQM will give a new pale to the educational system by providing important successes.

The educational institutions of today are concerned with quality. With the emergence of competition among schools, the identification of the academic institutions that have a high level of quality has become a crucial issue. Arcaro (2002) declared that today, quality is the single most important issue in education, business, and government. Higher



education institutions face problems of decreased enrollment, student attrition, and competition. These problems have been only partly addressed because of many school administrators' sensitivity to the issue of marketing of academic institutions. Some educators view marketing of education and recruitment of students as undignified and objectionable.

Classical (Traditional) Educational Conception:

In educational institutions in our country, the traditional concept of education is dominant. This understanding trains the students to be the human model who is largely passive, insecure, weak quality researcher, not adaptable quickly to changes and innovations. Higher education institutions are not cooperated with the sub-institutions (secondary schools and high schools) which will provide inputs to increase the quality of the students. In our country, education activities are in the form of a one-way transfer of information which is usually from teacher to student with the method of deductive. Students are not required to participate actively, listening quietly and courses are seen as a suitable environment for teaching. In traditional education approach it is seen that there is almost no information exchange between the education institutions and "Suppliers" and "customers". The success of the system at this level depends on planning all inter-agency activities.

Quality as a Measure of Effectiveness in Education:

Quality in higher education is defined by the World Conference on Higher Education in the Twenty-First Century (1998). Article II, which is on qualitative evaluation of education states that quality in higher education is a multidimensional concept which should embrace all its functions, and activities: teaching and academic programmes, research and scholarship, staffing, students, buildings, facilities, equipment, services to the community and the academic environment.



Internal self-evaluation and external review should be conducted openly by independent specialists

Quality also requires that higher education should be characterized by its international dimension, exchange of knowledge, interactive networking, mobility of teachers and students, and international research projects, while taking into account the national cultural values and circumstances. To attain and sustain national, regional, or international quality, certain components are particularly relevant, notably careful selection of staff and continuous staff development, in particular, through the promotion of appropriate programmes for academic staff development including teaching/learning, methodology, and mobility between countries, and between higher education institutions and the world of work, as well as student mobility within and between countries. The new information technologies are an important tool in this process, owing to their impact on the acquisition of knowledge and know-how (World Conference on Higher Education in the Twenty-First Century, 1998).

FEATURES OF TOTAL QUALITY EDUCATION:

a) Relations with Suppliers

Unlike traditional management, TQM envisages close cooperation with the other educational institutions which provides to students to itself. The understanding in here is; if the "input" quality is low, it is not possible to provide an education at the desired level. For this purpose, it is very important to give high quality education by the institutions which are providing students for the receiving educational institutions. Today in universities, the education is not at the expected quality because of the secondary and high schools are not educating the students at the expected standard before the education activities take place in universities. In this situation the universities administrations'



should cooperate closely with the institutions and organizations related to secondary and high schools,

b) Take into Account the Customer and Employee Needs

In an educational institution, one of the most important problems which need to be solved is "self-confidence" problem. Students and teachers should be together against failure problems. The teachers have great roles and responsibilities to help students to get rid of the failure due to self-esteem.

c) Continuous Improvement

In Total Quality, the development requires the continuous improvement of the educational process. The innovations in the education should instantly be reflected in the curriculum and the new learning methods must be applied. This process will also enhance the quality of the trained students and the quality of the products. In the process of education, TQM tries to provide everybody to feel like a leader in the institution. This situation gives the responsibility of assuming leadership roles to everybody around his/her responsibility and environment in an integrated way with the institutions. During this process the institution which applies TQM is the "learning organization" and the employees are "learning leaders." (James,1996).

d) Participation in Education

The teaching staffs are not only people who have to realize the quality in educational activities. The administrators in the educational institutions are responsible from maturing the educational conditions. To ensure the maximum participation the motivation of the teaching staff, students and other employees should be increased. The basic condition to ensure quality is to provide the active participation of whole participants to the work teams or quality circles. The teams



related with the education are an important and inseparable part of the institution quality.

REVIEW OF RELATED LITERATURE:

Roffe (1998) considers that due to open competition, students are becoming more customers as well as consumers and expected to pay a growing share of the costs of education. This leads to competitive forces that generate different programmers for different student groups. The conceptual problems include whether TQM in higher education should be people or problem oriented, difficulty in introducing the application and acceptance of TQM in higher education institutions, which have not embraced tenets of TQM, team Vs individual orientation towards TQM, maintaining the rate of innovation amongst others.

Kelly (2006) declared that effectiveness is taken as a reflection of something being done well within the institution. For this reason, effectiveness has come to be regarded as a planned result rather than an accidental outcome, and it is this concept which sustains the belief that good practice can be analyzed within and across institutions and shared among practitioners.

Reynolds (2002) stressed that high-reliability schools conduct open discussion and agreement of actions to be taken so that consistency is ensured. In these schools, resources and technology are as high quality, well kept and up-to-date as possible. High-reliability schools identify all their major networks and ensure that they are in harmony with one another to improve consistently high standards of education and achievement. In these schools, information is centrally held and there is clear leadership from the senior management. Appointment and recruitment practices are rigorous so that the most appropriate staff is appointed. Monitoring, evaluation, performance indicators, data bases and appraisal systems are used constantly and



demonstrate a high fitness for purpose. Standards are made clear and operational.

Springfield (2001) declared that in high-reliability schools, there are support networks and systems for developing effective education both within and outside the school. Communication, both formal and informal, is extensive. The staff is aware of the seriousness of, and accountability for, their responsibilities. Staff is accountable to each other and to outside entities. Short term innovations and improvements are set in the context of the schools' long-term development and improvement. Immediate interventions and strategies are in place in case problems arise.

Young (2000) indicates that high status attaches to academic subjects, curriculum that are organized into subjects and taught to the most students in homogeneous ability groups, unrelated to everyday life and vocational groups work, and is not formally assessed.

Sangeeta et al. (2004) considers education system as a transformation process comprising of inputs of students, teachers, administrative staff, physical facilities and process. The processes include teaching, learning, and administration. Output's includes examination results, employment, earnings and satisfaction.

CONCLUSION:

The main resource and tool of TQM in higher education is people. People are the main component of the most service activities. In judging the quality, the notion of stakeholders, including students, parents and employers, plays a vital role in appraising educational system as a whole on each of these parameters. It is imperative that all individuals and group associated with the higher educational system are well aware about their duties and responsibilities. Training of students is the main objective of educational system so as to facilitate to be better specialists of tomorrow. Parents have to be informed on



continual basis about the development of their wards so as to elicit their feedback for the improvement of the system. Employers' role is vital in terms of providing intrinsic and extrinsic motivating factors to the employees. They have to observe and take into account the changes in the external environment for the betterment of the institutions. Benefits of TQM include heightened employee morale, better teamwork among departments, bridging faculty staff functions, increased quality from customer viewpoint and continues development of everyone who is part of higher education institution. In all fields, especially education quality has an important matter. Total Quality Management as a necessary element always has a direct influence on the human improvement.

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