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Dr. K.VICTOR BABU

Editor-in-Chief



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Editorial

Provoking fresh thinking is certainly becoming the prime purpose of International Journal of Multidisciplinary Educational Research (IJMER). The new world era we have entered with enormous contradictions is demanding a unique understanding to face challenges. IJMER's contents are overwhelmingly contributor, distinctive and are creating the right balance for its readers with its varied knowledge.

We are happy to inform you that IJMER got the high **Impact Factor 2.735, Index Copernicus Value 5.16** and IJMER is **listed and indexed in 34 popular indexed organizations** in the world. This academic achievement of IJMER is only author's contribution in the past issues. I hope this journey of IJMER more benefit to future academic world.

The current issue deals with Teaching Practice programme, Global economic crisis, Global Human resource development, Digital Divide, RTI Corruption driven system Global HR Manager and etc. These applied topics are a fund of knowledge for their utilization.

In the present issue, we have taken up details of multidisciplinary issues discussed in academic circles. There are well written articles covering a wide range of issues that are thought provoking as well as significant in the contemporary research world.

My thanks to the Members of the Editorial Board, to the readers, and in particular I sincerely recognize the efforts of the subscribers of articles. The journal thus receives its recognition from the rich contribution of assorted research papers presented by the experienced scholars and the implied commitment is generating the vision envisaged and that is spreading knowledge. I am happy to note that the readers are benefited.

My personal thanks to one and all.

(Dr.Victor Babu Koppula)

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IMPACT OF TEACHING PRACTICE PROGRAM UPON THE PERSONALITY DEVELOPMENT OF B.ED., TRAINEES

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INTRODUCTION

The relationship between psychology and education has been a very close and cordial one. Each has profited by the data and principles of the other. The first practical applications of psychology of systematic type were made in the field of education, where today many of the individual and group methods of the laboratory are employed under the heading "experimental pedagogy". Indeed, both methods of teaching and content of the curriculum have been altered in accordance in to progress made in psychology which is not a completed process and hence this attempt.

Education is a dynamic force in the life of every individual, influencing physical, mental, emotional and social development. Educational psychology is the application of some general principles of psychology to the growth of education and teaching. Personality develops in certain direction. Personality is a product of action and their reaction. Teaching practice is a generalized plan for teaching which included structured designed learner behavior in terms of global of instruction and outline of planned tactics necessary to implement the practice.

NEED AND SIGNIFICANCE OF THE STUDY

Psychology of personality is of recent growth. Personality is the completed jigsaw puzzles as the whole individual is to be studied as whole. As we come to know a person, either younger or older than ourselves, we



begin to recognize individual from all other people. As we observable a particular person over a period of time, we notice how his temperament, interests and attitudes are developing and how his behavior and personality tends to make a more or less consistent direction. Philosophers are of the view that the personality is ideal of perfection or self-realization or the internal self.

The need of the study is to find out the effect of teaching practice which is a compulsory training program for 40days of B.Ed., trainees upon their personality development which is researched before and after the scheduled teaching practice with micro and macro skills, aids and subject knowledge in various schools during the course.

OBJECTIVES OF THE STUDY

1. To develop values, attitudes, awareness consistent with sustainable development in education.
2. To develop knowledge and skills in teaching practice of B.Ed., trainees.
3. To appreciate the commonality of needs, rights, values and psychology bind B.Ed., trainee with teaching practice program.
4. To increase the personality development of future teachers.
5. To link the personality development to educational reforms.

HYPOTHESES OF THE STUDY

1. There is no significant difference in the level of personality development of rural B.Ed., trainees before and after their teaching practice program.
2. There is no significant difference in the level of personality development of unmarried B.Ed., trainees before and after their teaching practice program.



3. There is no significant difference in the level of personality development of B.Ed., science graduate trainees before and after their teaching practice program.
4. There is no significant difference in the level of personality development of B.Ed., most backward community trainees before and after their teaching practice program.

METHODOLOGY

In the present study, explorative research method was employed. The investigator used the Eysenck's Personality Inventory Questionnaire. The tool was administered to the sample selected before and after the teaching practice period and collected data from the respondents. The data thus collected were put in to a appropriate statistical analyzed like mean, standard deviation and level of significance.

SAMPLE OF THE STUDY

The group sampling was used for this study. A total of 200 B.Ed., trainees for the variable from three self-financing B.Ed., colleges in PDRV Educational Institutions, Harur, Dharmapuri District of Tamil Nadu were selected as a sample.

TOOLS OF THE STUDY

The investigator was used Eysenck's personality inventory questionnaire. Prof.Eysenck's Personality Inventory questionnaire has 30 items selected from 57 based on single point scale. The responses are capable of measuring personality against the items given in the personality inventory questionnaire. The opinions positively oriented responses are given as "yes" and assigned scores are given +1 and the negatively oriented responses are given as "No" and assigned scores are given -1. The net



opinions cores are considered as the basis for calculation. In the light of these scoring key, credits are given to responses of the scores obtained.

DATA ANALYSIS

HYPOTHESIS 1

There is no significant difference in the level of personality development of rural B.Ed., trainees before and after their teaching practice program

Table – 1: Showing the significant difference in the mean scores of personality development level pre and post-teaching practice program of B.Ed., rural trainees.

Variable	N	Mean	S.D	t-value	Level of Significance 5%
Pre- teaching practice B.Ed., rural trainees	200	3.29	115.19	2.43	0.05
Post-teaching practice B.Ed., rural trainees	200	5.60	7.47		

It is found that t value 2.43 is significant at 0.05 levels. Since the calculated is greater than the table value and hence null hypothesis is rejected. Hence, it is concluded that the level of personality development of B.Ed., rural trainees after their teaching practice program significantly from the personality development of their pre teaching practice program.

HYPOTHESIS 2

There is no significant difference in the level of personality development of B.Ed., unmarried trainees before and after their teaching practice program.



Table – 2: Showing the significant difference in the mean scores of personality development level pre and post-teaching practice program of B.Ed., unmarried trainees.

Variable	N	Mean	S.D	t-value	Level of Significance 5%
Pre- teaching practice B.Ed., unmarried trainees	200	5.48	135.37	2.44	0.05
Post-teaching practice B.Ed., unmarried trainees	200	7.95	143.4		

It is found that t value 2.44 is significantly at 0.05 levels. Since the calculated value is greater than the table value and hence null hypothesis is rejected. Hence, it is concluded that the level of personality of B.Ed., unmarried trainees after their teaching practice program significantly from the personality development of their pre-teaching practice program.

HYPOTHESIS 3

There is no significant difference in the level of personality development of B.Ed., science graduate trainees before and after their teaching practice program.

Table – 3: Showing the significant difference in the mean scores of personality development level pre and post-teaching practice program of B.Ed., science graduate trainees.

Variable	N	Mean	S.D	t-value	Level of Significance 5%
Pre- teaching practice B.Ed., science graduate trainees	200	3.90	19.21	2.06	0.05
Post-teaching practice B.Ed., science graduate trainees	200	6.04	146.58		



It is found that t value 2.06 is significantly at 0.05 levels. Since the calculated value is greater than the table value and hence null hypothesis is rejected. Hence, it is concluded that the level of personality of B.Ed., science graduate trainees after their teaching practice program significantly from the personality development of their pre-teaching practice program.

HYPOTHESIS 4

There is no significant difference in the level of personality development of B.Ed., most backward community trainees before and after their teaching practice program.

Table – 3: Showing the significant difference in the mean scores of personality development level pre and post-teaching practice program of B.Ed., most backward community trainees.

Variable	N	Mean	S.D	t-value	Level of Significance 5%
Pre- teaching practice B.Ed., most backward community trainees	200	4.86	126.84	2.39	0.05
Post-teaching practice B.Ed., most backward community trainees	200	7.44	152.24		

It is found that t value 2.39 is significantly at 0.05 levels. Since the calculated value is greater than the table value and hence null hypothesis is rejected. Hence, it is concluded that the level of personality of B.Ed., most backward community trainees after their teaching practice program significantly from the personality development of their pre-teaching practice program.

FINDINGS

The findings from this research reveals that the level of personality development of B.Ed., trainees increases significantly after the teaching



program compared to personality development level of trainees before teaching practice program.

IMPLICATIONS OF THE STUDY

A student with a positive or high personality has high self-esteem. High personality develops self-confidence and poor personality hinders initial school adjustment and academic progress also. Trainees with high concept tend to accept their failure as well as limitations. They are better achievers. They are more determined to achieve their goals. They do not suffer from inferiority complex. They are free from mental sickness and work rigorously and express their ideas and beliefs to others with confidence and conviction. They have the ability to impress others. They are rational in their approach. Development of personality takes place due to the influence of biological and situational factors. Biological or heredity factors in personality are difficult to study through there are few studies to determine unique individual attributes. The way they are treated in culture, determines the personality fatteners. This condition applies for the training teachers also.

CONCLUSION

In general, the activities, objectives and events that we see potentially enhancing or threatening the personality and what command our attention and exert the most significant influence on our development. And since the aspects of the environment in teaching with which one person is self involved may be quite from those which seems important to another, we can see how the development of the personality, contributes to differentiate psychological behavior. Since, the B.Ed., trainees were exposed to the real teaching field and environment during their teaching practice , where they have adjusted and adapted for the environment and hence



obtained positively increased personality development which will reflect upon their performance or profession.

The way the teacher behaves and interacts with students can influence the children's way of living. Thus, the teachers are the harbingers of knowledge and can mould the students according to the needs and requirements of the society which ultimately reflects the personality of the student to bring out more awareness in the education of the sustainable development in the process of structuring and planning education for the development in the B.Ed., curriculum through various research practices across the globe. The teaching practice program has to be viewed in order to cater the future of teacher education. Professional development and cognitive psychology focus towards total personality development which ensures the teacher education.

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THE IMPACT OF TRAINING & DEVELOPMENT ACTIVITIES ON EXECUTIVES AT VISAKHAPATNAM STEEL PLANT (RINL)

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Introduction

Learning from experience is not enough, people have to be trained to manage the challenges posed by changing business environment. Training and development of employees in an organization is important due to its favorable consequences of improved performance at work, change in attitude, etc. The development of high potential personnel through continuous training and retraining is seen as a core element in the development of the successful organization. Training not only works wonder for the country and organization but also is important to every facet of growth and development of any individual. A change in various junctures of a person's career requires training.

The steel is critical in infrastructure development and infrastructure is the backbone of our country's economy. In response to the challenges posed in the steel industry, Visakhapatnam Steel Plant has envisaged to increase the plant capacity to 6.5 Mt per year of hot metal and 6.3 Mt per year liquid steel with corresponding increase in the production capacities of all its upstream and downstream units keeping in view to achieve optimum utilization of available resources like land etc., and the anticipated upturn in global and domestic steel demand. Therefore, there is a need of expansion process which requires skilled and competent hands. Training



and development is the means to prepare this fleet of competent people among operative and managerial staff.

Training and development of human resource management is the pivot around which all the techniques of growth process revolve. On the one hand, promoting employment is an accepted national goal and on the other finding suitable and trained manpower is a basic necessity for running economic enterprises. It has been rightly said that skills are the single most important factors in development.

Need and significance

Therefore, training is very significant for managers as they need skills to handle situations of high responsibility, training is essential for the growth of country, organization and its people. Hence, the importance given by the Visakhapatnam Steel Plant (RINL) management for training and development and the necessity of highly skilled managerial personnel, inspired the researcher to conduct a study on the impact of training and development programmes in Visakhapatnam Steel Plant which is one of the major steel producing plant in India.

For the view the above discussions, the present study in Visakhapatnam Steel Plant aims at finding how far the training and development programs increased the efficiency of the organization. After an initial study of the organization the study focused on critical analysis of training programs conducted for the executives by the Visakhapatnam Steel Plant, to examine its policy and practices in training and development programs and its impact on managerial efficiency, effectiveness and organization development with the following objectives.



Objectives

1. To critically analyze the training programs conducted for the executives by the Visakhapatnam Steel Plant
2. To examine the policy and practices on training of executives in Visakhapatnam Steel Plant
3. To research out data on training and development programmes of Visakhapatnam Steel Plant and how the training and development practices has helped in development of the organization.
4. To evaluate its impact on managerial efficiency and effectiveness.
5. To find out the effectiveness of the training imparted to the executives on their job

Research questions

Keeping in view of the above objectives, an attempt has been made to find out the answers for the following questions.

1. Are opportunities available for growth and development of executives?
2. Are the opportunities for development open to all and what is the Criteria for sponsoring a executives for training?
3. Do the training programs attended by executives are related to their job needs?
4. Are the training and development activities sufficient for the development of executives?
5. Do the rules and regulations of organization play a complementary role for transfer of training?



6. What is the overall impact of training on the organization?
7. Is the organization benefited from the training and development program?

Hypotheses

This study intends to provide insight into the important dimensions of training and development activities. An attempt is made to find out the effect of these activities on the efficiency and effectiveness of the executives. Therefore, in particular, the study aims at processing the data to test the following hypotheses.

H₁: There is no significant difference between Male and Female employees on the impact of Training & development on executive RINL.

H₂: Age of the employees as a factor which determining the impact of training and development an executive of RINL.

H₃: There is no significant difference between married and unmarried employees in their opinion towards the impact of training and development on the executive of RINL.

H₄: There is no significant difference among different education level employees towards the impact of training and development on the executives of RINL.

H₅: The job experience is one of the factors to which indicate the impact of training and development on the executives of RINL.

H₆: The opinion of the employees towards the impact of training and development on the executives of RINL did not based on this income levels.



Methodology

The drastic development of Visakhapatnam Steel Plant (RINL) and its growth and achievements in industrial sector made the researcher to observe these changes from outside and desired to study the organizing its functions and means for development, he selected for the study, and the variables for the study are training awareness, work objectives, use of training, features of training, components of training, training process, training criteria, training outcomes and evaluation. Ranking method was also used for qualitative analysis.

Instrumentation (Tool)

The researcher has personally involved in the investigation by visiting different departments of the selected organization and collected the necessary data and information through a pre-designed questionnaire, which is standardized by Critical Ratio Analysis Method for establishing the validity and reliability of the instrument.

Sample of the study (Data)

After designing the questionnaire the researcher personally visited the study unit and administered the questionnaire with a sample of 540 employees by random sampling method. The investigator has covered executives working in the selected organization both male and female categories with different education levels and experience status.

Variables in the study

The study has considered both independent and dependent variables in the investigation, where, the socio-demographic characters of the sample respondents (executives) are observed as independent variables and the dimensions of the impact of training and development are observed as



dependent variables. The dependent variables were studied in order to study the opinion of the executives on the training and development activities practiced in the human resource management of VSP organization and find out the influence of independent variables on the dependent variables.

Statistical techniques for analysis

The measurement of impact of training and development activities in human resource management at Visakhapatnam Steel Plant carried out with a statistical tool SPSS (Statistical Package for Social Sciences). The collected data through questionnaires indicate the impact of training and development on executives was statistically tested with t-test and f-test (ANOVA) techniques to test the hypothesis and analyze the impact of training and development activities on executives of VSP.

Analysis and discussion of data

After collecting the data of response from the executives working in Visakhapatnam Steel Plant on the impact of training and development activities in the organization, the investigator has framed some hypothesis to test the data with suitable statistical treatment. The following tables analyses the testing results of the hypothesis.

Table-I: Significant difference in dimensions of training and development between male and female executives

Statement	Gender	N	Mean	Std. Deviation	Std. Error Mean	t-value	Sig.
Training	Male	514	58.62	4.257	0.188	1.436	0.152
	Female	26	59.85	3.706	0.727		
Views about objectives & work	Male	514	21.31	1.873	0.083	0.222	0.824
	Female	26	21.23	1.177	0.231		
Views of Individuals on training	Male	514	73.41	3.979	0.176	3.538**	0.000
	Female	26	76.46	8.491	1.665		
Features of existing training methods	Male	514	45.05	1.711	0.075	3.172**	0.002
	Female	26	46.19	2.953	0.579		
Components of training	Male	514	20.08	0.809	0.036	3.922**	0.000
	Female	26	20.73	1.041	0.204		
Training process	Male	514	43.97	1.640	0.072	7.534**	0.000
	Female	26	46.46	1.726	0.338		
Training Criteria	Male	514	30.87	1.034	0.046	1.063	0.288
	Female	26	30.65	0.892	0.175		

Source: Primary Data, ** Significant @ 0.01 level



The above table analyses the significance difference between Male and Female employees in Visakhapatnam Steel Plant towards dimensions of training in the industry. Regarding training, the average performance of the Female employees (59.85) shows little higher than the Male employees (58.62) and the respective standard deviations are 3.706 and 4.257. The calculated t-value 1.436 found not significant.

Towards views of executives about objectives and work in the organization, the average performance of the Male employees was 21.31 and Female employees was 21.23, and the respective standard deviations are 1.873 and 1.177. The tested t-value 0.222 and found no significant level. In the views of individuals on training, the average performance of female executives (76.46) found significantly higher than male executives (73.41) and the standard deviations are 8.491 and 3.979. Therefore, the observed t-value is 3.538 found significant at 0.01 level.

Regarding the features of existing training methods, the average performance of female executives was 46.19 and male executives was 45.05, and the respective standard deviations are 2.953 and 1.711. Hence, the tested t-value 3.172 indicates 0.01 level significant. According to the response of sample towards components of training, the average performance of female was 20.73 and male was 20.08 and the standard deviations are 1.041 and 0.809. The tested t-value is 3.922 shows significant at 0.01 level.

Towards training process, the mean performance of female executives (46.46) shows significantly higher than male executives (43.97), and the respective standard deviations are 1.726 and 1.640. Therefore, the calculated t-value 7.534 found significant at 0.01 level. Regarding training



criteria, the average performance of male executives (30.87) found little higher than female executives (30.65), and the respectively standard deviations are 1.034 and 0.892. Hence, the derived t-value 1.063 indicates no significant level.

The above analysis and discussion indicates that the female employees are more satisfied in training, individual views on training, features of existing training methods, components of training, and training process in the organization. Whereas, the male executives are dominating in their satisfaction levels in views about objectives and work, training criteria. Except training, the female satisfaction level in remaining dimensions found significantly higher than male executives. Therefore, this shows that the female executives are satisfying more than male executives towards dimensions of training and development in the organization. Hence, the null-hypothesis is rejected.

Table-2: Significant difference in dimensions of training and development among different age group executives

Statement	Age group	N	Mean	Std. Deviation	Std. Error	f-value	Sig.
Training	26 - 35 Years	76	58.34	3.890	0.446	0.287	0.750
	36 - 45 Years	91	58.76	4.127	0.433		
	Above 45 Years	373	58.73	4.337	0.225		
Views about objectives & work	26 - 35 Years	76	21.24	1.810	0.208	0.775	0.461
	36 - 45 Years	91	21.53	1.587	0.166		
	Above 45 Years	373	21.27	1.910	0.099		
Views of Individuals on training	26 - 35 Years	76	74.75	6.049	0.694	3.670*	0.026
	36 - 45 Years	91	73.05	3.877	0.406		
	Above 45 Years	373	73.43	3.990	0.207		
Features of existing training methods	26 - 35 Years	76	45.43	2.002	0.230	1.624	0.198
	36 - 45 Years	91	44.96	1.406	0.147		
	Above 45 Years	373	45.08	1.842	0.095		
Components of training	26 - 35 Years	76	20.22	0.988	0.113	0.988	0.373
	36 - 45 Years	91	20.04	0.392	0.041		
	Above 45 Years	373	20.11	0.875	0.045		
Training process	26 - 35 Years	76	44.36	2.011	0.231	1.989	0.138
	36 - 45 Years	91	43.82	1.710	0.179		
	Above 45 Years	373	44.10	1.664	0.086		
Training Criteria	26 - 35 Years	76	30.87	1.011	0.116	0.003	0.997
	36 - 45 Years	91	30.86	1.017	0.107		
	Above 45 Years	373	30.86	1.037	0.054		

Source: Primary Data, ** Significant @ 0.01 level; * Significant @ 0.05 level



The above table explains the opinion difference among different age group employees in Visakhapatnam Steel Plant. Regarding training, the average performance of 36-45 years age group executives was 58.76, above 45 years age group executives was 58.73 and 26-35 years executives was 58.37, and the standard deviations are 4.127, 2.337 and 3.890 respectively. Therefore, the calculated f-value is 0.287 and did not indicate any significant level.

Towards views about objectives and work, the mean score of 36-45 years age group executives was 21.53, above 45 years age group executives was 21.27, and 26-35 years executives was 21.24, and the standard deviations are 1.587, 1.910 and 1.810 respectively. Hence, the tested f-value 0.775 found not significant at any level. In the views of individuals on training, the mean performance of 26-35 years age group executives was 74.75, above 45 years age group was 73.43 and 36-45 years age group executives was 73.05, and the respective standard deviations are 6.049, 3.990 and 3.877. Therefore, the calculated f-value 3.670 found significant at 0.05 level.

Regarding features of existing training, the average score of 26-35 years age group executives was 45.43, above 45 years age group executives was 45.08 and 36-45 years age group executives was 44.96, and the respective standard deviations are 2.002, 1.842 and 1.406. Hence, the observed f-value 1.624 found not significant level. In component of training, the average performance of 26-35 years executives are 20.22, above 45 years age group executives 20.11 and 36-45 years age group executives was 20.04. The respective standard deviations are 0.988, 0.875 and 0.392. Hence, the observed f-value 0.988 indicates not significant level.



Towards training process, the average performance of 26-35 years age group executives (44.36) found higher than above 45 years executives (44.10) and 36-45 years executives (43.82) and the respective standard deviations are 2.011, 1.664 and 1.710. Hence, the calculated f-value 1.989 found not significant. In training criteria, the mean score of 26-35 years age group executives was 30.87, 36-45 years and above 45 years age group executives was 30.86 and the standard deviations are 1.011, 1.017 and 1.037 respectively. Hence, the calculated f-value is 0.003 found not significant level.

According to the above analysis and discussion the lower age group executives are more positive towards views of individuals on training, features of existing training methods, components of training, training process and training criteria in the organization. Whereas, in training and views about objectives and work the middle age group executives are more positive than others. Hence, this shows that there is no significant difference between and within groups of executives by their age towards the dimensions of training and development in the organization. Therefore, the null-hypothesis is rejected.

Table-3: Significant difference in dimensions of training and development between married and unmarried executives

Statement	Marital status	N	Mean	Std. Deviation	Std. Error Mean	t-value	Sig.
Training	Married	526	58.67	4.226	0.184	0.603	0.547
	Unmarried	14	59.36	4.733	1.265		
Views about objectives & work	Married	526	21.33	1.843	0.080	1.665	0.096
	Unmarried	14	20.50	1.829	0.489		
Views of Individuals on training	Married	526	73.39	3.957	0.173	5.593**	0.000
	Unmarried	14	79.79	10.304	2.754		
Features of existing training methods	Married	526	45.12	1.776	0.077	0.826	0.409
	Unmarried	14	44.71	2.673	0.714		
Components of training	Married	526	20.09	0.802	0.035	4.780**	0.000
	Unmarried	14	21.14	1.231	0.329		
Training process	Married	526	44.03	1.673	0.073	5.087**	0.000
	Unmarried	14	46.36	2.240	0.599		
Training Criteria	Married	526	30.87	1.029	0.045	0.285	0.776
	Unmarried	14	30.79	1.051	0.281		

Source: Primary Data, ** Significant @ 0.01 level



The above table explains the significance difference between married and unmarried employees in Visakhapatnam Steel Plant. Regarding training, the average performance of the unmarried executives (59.36) shows little higher than the married executives (58.67) and the respective standard deviations are 4.733 and 4.226. The calculated t-value 0.603 found no significant level.

Towards views about objectives and work, the average performance of the married executives was 21.33 and unmarried executives was 20.50. The respective standard deviations are 1.843 and 1.829. The tested t-value 1.665 found no significant level. Among the total sample about views of individuals on training, the average performance of unmarried executives was 79.79 and married executives was 73.39, and the standard deviations are 10.304 and 3.957 respectively. Therefore, the derived t-value 5.593 found significant at 0.01 level.

Towards the features of existing training methods, the average performance of married executives was 45.12 and unmarried executives was 44.71, the respective standard deviations are 1.776 and 2.673. The observed t-value 0.826 found no significant. Regarding components of training, the average performance of unmarried executives was 21.14 and married executives was 20.09, and the standard deviations are 1.231 and 0.802 respectively. The tested t-value 4.780 and found significant at 0.01 level.

In training process, the average performance of unmarried 46.36 and married 44.03, the respective standard deviations are 2.240 and 1.673. The tested t-value is -5.087 and found at 0.05 significant value. Among the total sample from training criteria, the average performance of married 30.87 little higher than unmarried 30.79, the respectively standard



deviations are 1.029 and 1.051. Hence, the derived t-value 0.285 indicates no significant value.

The above analysis shows that the unmarried executives are more satisfied in training, individual views on training, components of training and training process in the organization. Whereas, married executives are satisfied more in views about objectives and work, features of existing training methods and training criteria. It indicates that the satisfaction level of unmarried executives found significantly higher than married executives. Therefore, this shows that the unmarried executives are satisfying more than married executives in four dimension, but married executives are satisfied more than unmarried executives in three dimensions. An overall there is a significant difference between married and unmarried executives in their opinion towards dimensions of training and development in the organization. Hence, the null-hypothesis is rejected.

Table-4: Significant difference in dimensions of training and development among executives by their qualification

Statement	Qualification	N	Mean	Std. Deviation	Std. Error	f-value	Sig.
Training	Under graduate	62	58.84	3.976	0.505	0.632	0.532
	Graduate	417	58.74	4.290	0.210		
	Post graduate	61	58.11	4.144	0.531		
Views about objectives & work	Under graduate	62	20.56	1.852	0.235	6.169**	0.002
	Graduate	417	21.38	1.837	0.090		
	Post graduate	61	21.59	1.736	0.222		
Views of Individuals on training	Under graduate	62	71.44	2.358	0.299	12.591**	0.000
	Graduate	417	74.04	4.463	0.219		
	Post graduate	61	72.41	4.236	0.542		
Features of existing training methods	Under graduate	62	44.92	2.249	0.286	3.363*	0.035
	Graduate	417	45.06	1.688	0.083		
	Post graduate	61	45.66	1.982	0.254		
Components of training	Under graduate	62	19.32	1.184	0.150	37.731**	0.000
	Graduate	417	20.24	0.744	0.036		
	Post graduate	61	20.05	0.425	0.054		
Training process	Under graduate	62	43.29	1.859	0.236	8.926**	0.000
	Graduate	417	44.15	1.663	0.081		
	Post graduate	61	44.51	1.804	0.231		
Training Criteria	Under graduate	62	31.05	1.093	0.139	4.463*	0.012
	Graduate	417	30.88	1.043	0.051		
	Post graduate	61	30.52	0.766	0.098		

Source: Primary Data, ** Significant @ 0.01 level; * Significant @ 0.05 level



The above table analyses the significant differences in education qualification of employees in Visakhapatnam Steel Plant. Regarding training, the average performance of under graduates are 58.84, graduates are 58.74 and post graduates are 58.11 respectively, the standard deviations are 3.976, 4.290 and 4.144. Hence, the derived f-value is 0.632 found not significant.

Towards views about objectives & work, post graduate holders 21.59, graduates 21.38 and under graduates 20.56, the respective standard deviations are 1.736, 1.837 and 1.852. Therefore the derived f-value is 6.169 and found there is 1% significant value. Out of the total sample from views of individuals on training, the average performances of graduates are 74.04, post graduates 72.41 and under graduate 71.44, the respective standard deviations are 4.463, 4.236 and 2.358. Hence, the derived f-value is 12.591 and found 1% significant value.

In features of existing training methods, the average performance of post graduates 45.66, graduates 45.06 and under graduates 44.92. The respective standard deviations are 1.982, 1.688 and 2.249. Therefore the derived f-value is 3.363 and found there is 0.05 percent significant value. According to the total sample from components of training, the average performance of graduates 20.24, post graduates 20.05 and under graduates 19.32 respectively. The standard deviations are 0.744, 0.425 and 1.184. Hence, the derived f-value is 37.731 and found there is 1% significant value.

Towards training process, the average performance of post graduate holders are 44.51, graduate holders are 44.15 and under graduates are 43.29 respectively, the standard deviations are 1.804, 1.663 and 1.859. Therefore the derived f-value is 8.926 and found 1% significant value. From the total sample from training criteria, the average performance of under



graduates are 31.05, graduates are 30.88 and post graduates are 30.52. The respective standard deviations are 1.093, 1.043 and 0.766. Hence, the derived f-value is 4.463 and found at 0.05 significant value.

The above analysis and discussion shows that the under graduate executives are more positive towards training and training criteria, but graduate executives satisfaction level is more significant in individual views on training and components of training than others. Whereas, the response of the post graduate executives indicates significantly more positive towards views about objectives & work, features of existing training methods and training process than others. Therefore, it shows that there is a significant difference between and within the groups of executives by their education levels towards the dimensions of training and development in the organization. Hence, the null-hypothesis is rejected.

Table-5: Significant difference in dimensions of training and development among executives by their job experience

Statement	Experience	N	Mean	Std. Deviation	Std. Error	f-value	Sig.
Training	1 - 5 years	76	58.80	3.816	0.438	2.620*	0.050
	5 - 10 years	52	57.17	4.764	0.661		
	10 - 20 years	91	59.12	4.074	0.427		
	Above 20 years	321	58.78	4.254	0.237		
Views about objectives & work	1 - 5 years	76	21.16	2.027	0.232	0.956	0.413
	5 - 10 years	52	21.62	1.922	0.266		
	10 - 20 years	91	21.46	1.587	0.166		
	Above 20 years	321	21.25	1.856	0.104		
Views of Individuals on training	1 - 5 years	76	73.57	6.021	0.691	0.270	0.847
	5 - 10 years	52	74.06	2.768	0.384		
	10 - 20 years	91	73.54	4.438	0.465		
	Above 20 years	321	73.47	4.054	0.226		
Features of existing training methods	1 - 5 years	76	44.92	2.565	0.294	0.543	0.653
	5 - 10 years	52	45.06	1.720	0.238		
	10 - 20 years	91	45.02	1.498	0.157		
	Above 20 years	321	45.18	1.677	0.094		
Components of training	1 - 5 years	76	19.99	1.501	0.172	1.816	0.143
	5 - 10 years	52	20.06	0.895	0.124		
	10 - 20 years	91	20.27	0.668	0.070		
	Above 20 years	321	20.11	0.610	0.034		
Training process	1 - 5 years	76	44.70	1.953	0.224	4.003**	0.008
	5 - 10 years	52	43.83	1.505	0.209		
	10 - 20 years	91	44.11	1.670	0.175		
	Above 20 years	321	43.98	1.696	0.095		
Training Criteria	1 - 5 years	76	30.74	0.929	0.107	1.667	0.173
	5 - 10 years	52	31.13	0.991	0.137		
	10 - 20 years	91	30.89	0.983	0.103		
	Above 20 years	321	30.84	1.065	0.059		

Source: Primary Data, ** Significant @ 0.01 level; * Significant @ 0.05 level



The above table indicates the significant difference in the opinions of employees by their level of experience. The average performance of 10 to 20 years experienced employees was 59.12, 1 to 5 years experience was 58.80, above 20 years experience was 58.78 and 5 to 10 years experience was 57.17, and the respective standard deviations are 4.074, 3.816, 4.254 and 4.764. Therefore, the calculated f-value 2.620 found 1% significant level.

Regarding views about objectives & work, the average performance of 5 to 10 years experienced employees was 21.62, 10 to 20 years experience 21.46, above 20 years experience 21.25 and 1 to 5 years experienced employees was 21.16. The standard deviations are 1.922, 1.587, 1.856 and 2.027 respectively. Hence, the observed f-value 0.956 found no significant level. In views of individuals on training, the mean score of 5 to 10 years experienced employees was 74.06, 1 to 5 years experience was 73.57, 10 to 20 years experience was 73.54 and above 20 years experienced employees was 73.47. The respective standard deviations are 2.768, 6.021, 4.438 and 4.054. Therefore, the derived f-value 0.270 and found there is no significant value.

Towards features of existing training methods, the mean score of above 20 years experienced employees was 45.18 found higher than 5 to 10 years 45.06, 10 to 20 years 45.02 and 1 to 5 years experienced employees 44.92, and the respective standard deviations are 1.677, 1.720, 1.498 and 2.565 respectively. Therefore, the calculated f-value 0.543 found not significant level. In components of training, the average performance of 10 to 20 years experienced employees 20.27 indicate significantly higher than above 20 years experience 20.11, 5 to 10 years experience 20.06 and 1 to 5 years experience 19.99. The standard deviations are 0.668, 0.610, 0.895



and 1.501 respectively. Therefore, the tested f-value 1.816 and found not significant level.

The mean score of 1 to 5 years experienced employees in training process was 44.70, 10 to 20 years experience was 44.11, above 20 years experience was 43.98 and 5 to 10 years experience was 43.83. The respective standard deviations are 1.953, 1.670, 1.696 and 1.505. Hence, the f-value 4.003 found 1% significant level. In training criteria, the average performance of 5 to 10 years experienced employees was 31.13, 10 to 20 years experience was 30.89, above 20 years experience was 30.84 and 1 to 5 years experience was 30.74, and the respective standard deviations are 0.991, 0.983, 1.065 and 0.929. Therefore, the derived f-value 1.667 and found there is no significant value.

According to the above discussion it shows that the between 1-5 years experienced executives are more positive towards training process, between 5-10 years experienced executives found more positive towards views about objectives & work, components of training and training criteria, between 10-20 years experienced executives satisfaction level is more in training in the organization and above 20 years of experienced employees are comparatively more positives towards features of existing training methods than others. Therefore, the analysis infers that job experience is not a factor which determines the impact of training and development on the executives of RINL. Hence, the null-hypothesis is rejected.



Table-6: Significant difference in dimensions of training and development among executives by their income levels

Statement	Qualification	N	Mean	Std. Deviation	Std. Error	f-value	Sig.
Training	1 - 3 Lakhs	52	58.75	4.361	0.605	5.448**	0.005
	3 - 5 Lakhs	65	60.28	3.927	0.487		
	Above 5 Lakhs	423	58.43	4.223	0.205		
Views about objectives & work	1 - 3 Lakhs	52	21.23	1.957	0.271	7.164**	0.001
	3 - 5 Lakhs	65	20.52	2.319	0.288		
	Above 5 Lakhs	423	21.44	1.720	0.084		
Views of Individuals on training	1 - 3 Lakhs	52	73.92	6.522	0.905	4.194*	0.016
	3 - 5 Lakhs	65	72.11	3.294	0.409		
	Above 5 Lakhs	423	73.73	4.113	0.200		
Features of existing training methods	1 - 3 Lakhs	52	44.94	2.689	0.373	1.349	0.260
	3 - 5 Lakhs	65	44.82	1.758	0.218		
	Above 5 Lakhs	423	45.17	1.670	0.081		
Components of training	1 - 3 Lakhs	52	20.13	1.314	0.182	0.052	0.949
	3 - 5 Lakhs	65	20.14	1.413	0.175		
	Above 5 Lakhs	423	20.11	0.610	0.030		
Training process	1 - 3 Lakhs	52	44.69	2.054	0.285	3.908*	0.021
	3 - 5 Lakhs	65	44.20	1.227	0.152		
	Above 5 Lakhs	423	44.00	1.738	0.084		
Training Criteria	1 - 3 Lakhs	52	30.65	0.837	0.116	1.808	0.165
	3 - 5 Lakhs	65	30.75	0.952	0.118		
	Above 5 Lakhs	423	30.91	1.058	0.051		

Source: Primary Data, ** Significant @ 0.01 level; * Significant @ 0.05 level

The above table analyses the significant difference among different income level employees in Visakhapatnam Steel Plant towards the impact of training and development on executives. Regarding training, the average performance of 1-3 lakh income earners was 58.75, 3-5 lakhs salary holders was 60.28 and above 5 lakhs salary holders was 58.68, and the respective standard deviations are 4.361, 3.927 and 4.223. Therefore, the calculated f-value 5.448 and found significant at 0.01 level.

Towards the views about objectives & work, the average performance of 1-3 lakhs annual income level employees was 21.23, 3-5 lakhs salary holders was 20.52 and above 5 lakhs salary holders was 21.44, and the respective standard deviations are 1.957, 2.319 and 1.720. Therefore, the calculated f-value is 7.164 and found 0.01 level significant.



In views of individuals on training, the mean score of 1-3 lakhs income level employees was 73.92, 3-5 lakhs income level employees was 72.11 and above 5 lakhs salary holders was 73.73, and the respective standard deviations are 6.522, 3.294 and 4.113. Hence, the observed f-value 4.194 found significant at 0.05 level.

Towards features of existing training methods, the average score of above 5 lakhs income level employees are 45.17, 1-3 lakhs income level employees are 44.94 and 3-5 lakhs salary holders are 44.82, and the respective standard deviations are 1.670, 2.689 and 1.758. Hence, the tested f-value 1.349 found not significant. In components of training, the average performance of 3-5 lakhs income level employees are 20.14, 1-3 lakhs salary holders are 20.13 and above 5 lakhs salary holders are 20.11, and the respective the standard deviations are 1.413, 1.314 and 0.610. Therefore, the calculated f-value 0.052 and there is no significant.

Regarding training process, the average performance of 1-3 lakhs income level employees are 44.69, 3-5 lakhs salary holders are 44.20 and above 5 lakhs salary holders are 44.00. The standard deviations are 2.054, 1.227 and 1.738 respectively. Hence, the observed f-value 3.908 and found significant at 0.05 level. Towards training criteria, the average score of above 5 lakhs income level employees are 30.91, 3-5 lakhs salary holders are 30.75 and 1-3 lakhs salary holders are 30.65, the respective standard deviations are 1.058, 0.952 and 0.837. Therefore, the derived f-value 1.808 and found there is no significant level.

From the above discussion it can be conclude that the executives whose annual income was low (1-3 lakhs), they are more positive towards individual views on training, features of existing training methods and training process in the organization, the executives whose annual income



levels was middle (3-5 lakhs), they are more positive towards training and components of training, whereas, the employees whole income level was high (Above 5 lakhs), they are more positive towards views about objectives & work and training criteria. An overall it shows that there is a significant difference between and within the groups of executives by their income levels towards the dimensions of training and development in the organization. Therefore, the income levels determining the executives in their opinions regarding impact of training and development on the executives of RINL. Hence, the null-hypothesis is rejected.

Discussion

The analysis of the data reveals that female employees are more satisfied in training, individual views on training, features of existing training methods, components of training, and training process in the organization. Whereas, the male executives are dominating in their satisfaction levels in views about objectives and work, training criteria. Except training, the female satisfaction level in remaining dimensions found significantly higher than male executives. Therefore, the female executives are satisfying more than male executives towards training and development activities in the organization.

The data infers lower age group executives are more positive towards views of individuals on training, features of existing training methods, components of training, training process and training criteria in the organization. Whereas, in training and views about objectives and work the middle age group executives are more positive than others. Hence, age of the employee is not a factor to determine the impact of training and development in the organization.



The analysis of data shows that the under graduate executives are more positive towards training and training criteria, but graduate executives satisfaction level is more significant in individual views on training and components of training than others. Whereas, the response of the post graduate executives indicates significantly more positive towards views about objectives & work, features of existing training methods and training process than others. Therefore, it shows that there is a significant difference between and within the groups of employees by their education levels towards the impact of training and development on executives in the organization.

According to the data, between 1-5 years experienced employees are more positive towards training process, but between 10-20 years experienced executives satisfaction level is more in training in the organization. Whereas, the opinions of 5-10 years experienced employees found more positive towards views about objectives & work, components of training and training criteria, and the executives who are having more than 20 years of experience are comparatively positives towards features of existing training methods. An overall there is no significant difference between and within the groups of employees by their experience levels towards training and development activities in the organization.

It can be conclude from the data that the employees whose annual income was between 1-3 lakhs are more positive towards individual views on training, features of existing training methods and training process in the organization. But the employees whose annual income levels are between 3-5 lakhs found more positive towards training and components of training. Whereas, more than 5 lakhs annual income earners are more positive towards views about objectives & work and training criteria. An overall it shows that there is a significant difference between and within



the groups of employees by their income levels towards the impact of training and development on executives in the organization.

Conclusion

One of the primary objectives of the industries is to develop a well-knit personnel policy and a comprehensive personnel programme that will be result-oriented and to develop organizational objectives. In accordance with this objective, Visakhapatnam Steel Plant (RINL) has given considerable emphasis on development of human resources, as well as formulation and implementation of progressive personnel policies, systems, rules and procedures to synchronise organizational needs/ business plan with individual aspirations. VSP has laid emphasis on effective man management as it believes that effectiveness and success of the organization depend largely on the skills and commitment of the people.

VSP has developed a comprehensive scheme of career planning and managerial succession. The size of the organization has necessitated the development of a computer culture which motivates employees to contribute their best towards the achievement of organizational based Personnel Inventory System. In the field of industrial relations, VSP encourages a participative approach. A career with VSP will mark the beginning for a quest for advancement. VSP is a fast expanding organization and provides ample opportunities to bright youngsters to rise in the organizational hierarchy.

The Company has an exclusive Training and Development Centre to take care of the training requirements of the officers and workmen as well as the newly recruited Management Trainees etc. The training initiative includes special need based Programs and orientation programs catering to the requirements of various departments of the company.



Suggestions

There is a need of linking business strategy and cultural strategy to the training and development activities. Then it will be easy to identify how the training supports the strategy. Identify a minimum acceptable level of effectiveness for training and development curriculum, so that the expected results can be easily evaluated in the process of functioning.

Each and every training and development activity has to be measured as soon as the training program is completed and feedback given to trainee, trainer and concerned department for future improvement/development.

A variety of terms have been used by researchers, academicians and practitioners to describe the research area selected by the researcher. Live training, training and development, employee development, learning and development and human resource development. The researcher selected training and development mainly with regard to its impact and effectiveness.

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INTERNET MARKETING

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Definition of Internet Marketing:

Internet marketing is the process and executing the conception, pricing, promotion, and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational goals.

Meaning of Internet Marketing:

Internet marketing is the process of building and maintaining customer relationship through online activities to facilitate the exchange of ideas, products, and services that specify the goals of both parties.

THE SEVEN STAGES OF INTERNET MARKETING:

1. Corporate and business-unit strategy
2. Analyze the market opportunity
3. Formulating marketing strategy
4. Design the customer experience
5. Design the marketing program
6. Design the customer interfacing
7. Evaluate the marketing program



Stage one- Corporate and business-unit strategy:

Corporate strategy addresses the inter-relationship between the various business units in a firm, including decisions about which units should be kept, sold, or augmented. Business unit strategy focuses on how a particular unit in the company attacks the market to gain competitive advantage.

Stage tow- Analyze the market opportunity:

In the stage entails the analysis of market opportunities and an initial first pass of the business concepts—that is, collecting sufficient online and offline data to establish the burden of proof of opportunity assessment.

Stage three-Formulating marketing strategy:

Internet marketing strategy is based upon corporate, business-unit, and overall marketing strategies of the firm. The marketing strategy goals, resources, and sequencing of actions must be tightly aligned with the business-unit strategy. Finally, the overall marketing strategy comprises both offline and online marketing activities.

Stage four-Designing the customer experience:

Firms must understand the type of customer experience that needs to be delivered to meet the market opportunity. The experience should correlate with the firm's positioning and marketing strategy.

Stage five-designing the marketing program:

The completion of stages one through four results in clear strategic direction for the form. The firm has made a go/no-go decision on a particular option. Moreover, it has decided upon the target segment and the specific position that it wishes to own in the mind of the target customer.



Stage six-Crafting the customer interface:

The Internet has shifted the locus of the exchange from the market place (i.e., face-to-face interaction) to the market space (i.e., screen-to-face interaction). The key difference is that the nature of the exchange relationship is now mediated by technology interface.

Stage seven-Evaluating the market program:

The last stage involves the evaluation of the overall Internet Marketing program. This includes a balanced focus on both customer and financial metrics.

The Internet Marketing Mix:

The traditional 4ps of marketing are product, price, promotion, and place/distribution. All four of these choices are part of the Internet marketing mix, plus new elements like physical evidence, people and process when marketing planning for an online service.

PRICING

Setting prices is a key challenge for firms, and the fact is that prices are often set in an unstructured manner. Firms often have a wide variety of potential pricing strategies and price points to consider when deciding how to best implement profit-maximizing strategies. In addition the internet has strongly influenced old-economy pricing strategies, moreover it internet has created an entirely new category of pricing tools, the types of pricing are given below:

Penetration Pricing.

The price charged for products and services is set artificially low in order to gain market share. Once this is achieved, the price is increased. This approach was used by France Telecom and Sky TV.



Economy Pricing.

This is a no frills low price. The cost of marketing and manufacture are kept at a minimum. Supermarkets often have economy brands for soups, spaghetti, etc.

Price Skimming.

Charge a high price because you have a substantial competitive advantage. However, the advantage is not sustainable. The high price tends to attract new competitors into the market, and the price inevitably falls due to increased supply. Manufacturers of digital watches used a skimming approach in the 1970s. Once other manufacturers were tempted into the market and the watches were produced at a lower unit cost, other marketing strategies and pricing approaches are implemented.

Psychological Pricing.

This approach is used when the marketer wants the consumer to respond on an emotional, rather than rational basis. For example 'price point perspective' 99 cents not one dollar.

Product Line Pricing.

Where there is a range of product or services the pricing reflect the benefits of parts of the range. For example car washes. Basic wash could be \$2, wash and wax \$4, and the whole package \$6.

Promotional Pricing.

Pricing to promote a product is a very common application. There are many examples of promotional pricing including approaches such as BOGOF (Buy One Get One Free).



Geographical Pricing.

Geographical pricing is evident where there are variations in price in different parts of the world. For example rarity value, or where shipping costs increase price.

Value Pricing.

This approach is used where external factors such as recession or increased competition force companies to provide 'value' products and services to retain sales e.g. value meals at McDonalds.

Premium Pricing.

Use a high price where there is a uniqueness about the product or service. This approach is used where a substantial competitive advantage exists. Such high prices are charge for luxuries such as Cunard Cruises, Savoy Hotel rooms, and Concorde flights.

PRODUCT

A product is simply the tangible, physical entity that they may be buying or selling. In order to actively explore the nature of a product further, let's consider it as three different products - the CORE product, the ACTUAL product, and finally the AUGMENTED product.

CORE PRODUCT:

The CORE product is NOT the tangible, physical product. We can't touch it. That's because the core product is the BENEFIT of the product that makes it valuable to us. So with the car example, the benefit is convenience. Another core benefit is speed since we can travel around relatively quickly.

ACTUAL PRODUCT:

The ACTUAL product is the tangible, physical product. We can get some use out of it. Again with the car example, it is the vehicle that test drive, buy and then collect.

AUGMENTED PRODUCT:

The AUGMENTED product is the non-physical part of the product. It usually consists of lots of added value, for which you may or may not pay a premium. So when we buy a car, part of the augmented product would be the warranty, the customer service support offered by the car's manufacture, and any after-sales service.

PLACE

The e-Marketing space consists of new Internet companies that have emerged as the Internet has developed, as well as those pre-existing companies that now employ e-Marketing approaches as part of their overall marketing plan. For some companies the Internet is an additional channel that enhances or replaces their traditional channel(s). For others the Internet has provided the opportunity for a new online company.



Pre-existing companies that have adopted e-Marketing.

These are traditional companies that trade on the Internet.

Banking and financial Services e.g. HSBC Bank. Banks and financial services have benefited tremendously from the popularity of Internet usage. There is a mixture of new online banks and traditional banks, both offering online banking services. Essentially banks no longer need to invest in high cost, high street selling units i.e. old fashioned town-based banks. Labor costs have also been reduced since much of the traditional banking bureaucracy is done using IT, and the use of overseas call centers has meant that salaries are much lower. Software also means that customers can be retained by using Customer Relationship Management (CRM) eMarketing approaches.



New Internet companies.

These companies only trade on the Internet.

New online manufacturer brand e.g. Dell.com - Entrepreneurs saw opportunities for developing online manufacturers' brands that took

advantage of online technologies that enabled innovative new products to be adapted to customer preferences, and by using IT to enable efficient and effective operations such as assembly and logistics.

Online Auction e.g. eBay. In common with new online retail brands, before the emergence of Internet technologies, this concept was not possible. Essentially eBay is a Consumer-to-Consumer (C2C) business



PROMOTION

Promotion is the way to promote a product in different areas of media. Promoters use internet advertisement, special events, endorsements, and newspapers to advertise their product. Many times with the purchase of a product there is an incentive like discounts, free items, or a contest. This is to increase the sales of a given product.

Promotions Strategies:.

1. Of course to promote website you should also consider offline promotion strategies such as those used by non- Internet businesses.
2. Here a selection of other suitable approaches to offline promotion:



3. Create a media release or announce a media conference regarding your website.
4. Advertise using other media such as TV, billboards, radio, newspapers and magazines, or the cinema.
5. Send out direct mail shots and run campaigns.
6. Print your domain name and e-mail contact addresses upon all of your corporate material.
7. Offer free products and services. FREE is one of the most powerful words in marketing.
8. Provide free material e.g. fact sheets or guides that could be posted or e-mailed to customers.
9. Offer competitions or quizzes (with prizes when possible).

CONCLUSION:

Through this paper I portray the Internet marketing assist the manufacturers to market their product efficiently and easily in the market to fascinate the customers.

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IMPACT OF GLOBAL ECONOMIC CRISIS ON INDIAN ECONOMY: AN ANALYSIS

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Introduction:

Development means growth at a higher level; both are synonymous to each other. There is close interaction between these two turns because one follows the other. Development is not a single aspect. It is based upon the contribution of several other systems like social, political, economic, and cultural besides all these aspects economic system contributes more for the development of a country. Due to this reasons scholars like Ilchman, and Bhargava stressed the need of economic growth in the context of development. Some times their will be fluctuations in the economic system which causes economic crisis in the world. The aim of this paper is to explain about growth and development vs. Global economic crisis and its impact on developing countries like India.

Global Economic Crisis:

The Global Economic Crisis first started in U.S and gradually it has spread to other countries. By the time of the bankruptcy of Lehman Brothers in September 2008 the financial crisis had become a more general banking crisis which in turn rapidly impacted on the real economy and turned into a Global recession. Globalization is a multi-dimensional process of economic and structural transformation that has a variety of meanings and interpretations. It generally refers to with the increasing flows of capital goods and resources and knowledge across national boundaries.



However defined globalization has led to the greater Integration of National Economies through trade liberalization financial sector deregulation and capital account liberalization and flows of foreign direct investments (FDI) by transnational corporations (TNCs). Globalization has opened up new opportunities to low and middle income countries through improved market access, increased flows of FDI often integrating them in to global value chains (GVCs) or global production networks (GPNs) and accelerated technology transfer both product and process technologies although not as significant as global capital mobility the international migration of labour has led to reciprocal flows of remittances which have become a major income source for many developing countries. Increased economic interdependence between national economies leads inevitably to greater vulnerability to global economic shocks which are beyond the control of individual countries. Developing countries run the danger of becoming locked in to the business cycle financial sector conditions and the vagaries of policy making in the larger more powerful developed market (CAPITALIST) economies and many would argue this growing integration of national economies has not be accompanied by the appropriate mechanisms and institutions of global economic governance that would correct the imbalances, address market failure anticipate disequilibria and coordinate and regulate international flows of goods, services and capital both FDI and portfolio flows.

In the second half of 2007 the world economy began to face acute financial turmoil. It was becoming clear that serious losses were occurring .In the United States a subprime mortgage market and as a result of the fall in US house prices. The increase in mortgage defaults led to further corrections in housing prices leading to further defaults using interest rates to cover bank losses and eventually to the insolvency of lending



institutions themselves. Much of the initial funding for mortgages had been obtained from the interbank money markets and thus other financial intuitions were compromised and failed or had to be bailed our leading to a liquidity and credit crunch in the interbank money markets. The development of an essentially unregulated shadow banking system led to a loss of confidence fuelled as the extent of toxicity of many assets became more widely known. Banks cut back on short term lending to those institution or markets that were seen as excessively risky.

Global Economic crisis was largely owing to non-traditional lending outside the banking system centering on securitization. Through securitization loans once held on the books of banks were repackaged and sold. The scale and institutions and incentives promote successful industrialization. There is no reason in principle why developing economies can't pursue green industrialization by developing and using green technologies creating new markets and creating a virtuous circle between environmental production and economic growth.

To understand the origins and evolution of the crisis and its impact on developing countries we have to locate our analysis within a broader global context. Financial sector instability is largely but not solely the result of over two decades of liberalization and deregulation which began in the 1980s under the Reagan and Thatcher administrations and which has a fundamental economic instability is in part related to the emergence surplus and net capital export economies namely China other East and South East Asian current account surplus economies and the large net oil exporters.

Another source of global instability is the volatility of oil and commodity prices. Having reached record levels in April-June 2008,



commodity prices fell sharply over the remainder of the year especially oil a number of metals. Obviously the economic impact of commodity price fluctuations depends on the structure and composition of production and track of individual developing countries. Net commodity exporters in general benefit from rising prices and suffer when prices decline economies that are heavily dependent on imported oil and foodstuffs other things being equal will benefit from falling commodity prices.

The causes of financial crisis are complex. According to the IMF (2010 2011) world output grew by 3 percent in 2008, fell by 0.6 percent in 2009 and grew again by 5 percent in 2010. It is projected to grow by 4.4 percent in 2011 and 4.5 percent in 2012 a clear sign of global recovery. For advanced economies output grew by 0.5 percent in 2008 fell by 3.4 percent in 2009 and grew by 3 percent in 2010. It is projected to grow by 2.5 percent and 2.5 percent for the years 2011 and 2012 respectively. The difference between world output and advanced country output figures is largely accounted for by the emerging and developing economies group of countries and Developing Asia (China, India, Asian -Indonesia, Malaysia, Philippines, Thailand and Vietnam) in particular.

It was not until September 2008 that the impact of the financial crisis on International trade became evident WTO 2009. The full impact of the crisis was felt across all regions of the Global Economy by the Fourth quarter of 2008 with Europe experiencing a fall of 16 percent in the fourth quarter and Asia recording a fall of 5 percent in the exports in the same period. In the first quarter of 2009 there was a much steeper decline in merchandise trade with falling commodity price largely to blame(WTO 2009). The IMF (2010-2011) gives data for World Trade volume (goods and services) for 2008, 2009 and 2010.



World GDP and World merchandise exports move in tandem. The rate of growth in International trade is greater than the rate of growth of GDP. But the same relationship holds when GDP of its rate of growth fall. The income elasticity of manufactured exports is greater than that for total than merchandise exports to changes in income.

As far as the impact of crisis on employment is concerned with the latest ILO (2010-2011) data indicate that the largest falls in employment were in the manufacturing sectors in all regions of the Global Economy, but were greater in developed economies. In the latter group of economies the fall in employment is estimated to be million jobs as opposed to approximately 2 million jobs lost in developing economies. There were also significant but smaller falls in employment in the construction and wholesale and retail trade sectors in all economies. Significant job losses could be seen for the period from 2008 to 2009 as the government of major donor countries struggle to bring their public sector budget deficits in control.

Impact of global economic crisis on Indian economy an analysis:

Global economic meltdown has affected almost all the countries of the world, strongest of American. European and Japanese companies are facing severe crisis of liquidity and credit. This global financial and economic crisis keeps on getting worse. Recession in the United States is a very bad news for our country. Our companies in India have most outsourcing deals from the US. Even our exports to US have increased over the years. Exports for January, 2009 have declined by 22 percent. There is a decline in the employment market due to the recession in the West. There has been a significant drop in the new hiring which is a cause of great concern for us. Some companies have laid off their employees and there have been cut in



promotions, compensation and perks of the employees. Companies in the private sector and government sector are hesitant to take up new projects. And they are working on existing projects only. The textile, garment and handicraft industry are badly affected. There has also been a decline in the tourist inflow lately. The real estate has also a problem of tight liquidity situations, where the developers are finding it hard to raise finances. Further. The manufacturing sector has equally been hit hard by the economic slowdown.

A recession is a decline in a country's gross domestic product (GDP) growth for two or more consecutive quarters of a year. A recession is also preceded by several quarters of slowing down. An economy which grows over a period of time to slow down the growth as a part of the normal economic cycle. A recession normally takes place when consumers lose confidence in the growth of the economy and spend less. This leads to a decreased demand for goods and services, which in turn leads to a decrease in production, lay-offs and a sharp rise in unemployment. Investors spend less as they fear stocks values will fall and thus stock markets fall on negative sentiment.

The economic and the stock market are closely related. The stock markets reflect the buoyancy of the economy. The Indian stock markets crashed due to a showdown in the US. The Sensex crashed by nearly 13 percent in just two trading sessions in January, 2008.

In November 2008, the giant Citibank and The Bank of America had to be bailed out with several hundred billion dollars by the American authorities. It also reported job losses of more than 5,30,000. The biggest single month figure since 1974, taking the US unemployment rate to 6.7 percent, the highest in last 15 years. The developed economies of the world

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like Europe, UK, Japan and US are today officially in recession i.e. they have experienced two successive quarters of negative growth. This is not just bad news for India, but also for the rest of the world. There is more uncertainty about the depth and duration of the current global recession.

The US economy has suffered 10 recessions since the end of World War II. The Great Depression in the US was an economic slowdown, from 1930 to 1939. It was a decade of high unemployment, low profits, low prices of goods, and high poverty. The trade market was brought to a standstill, which consequently affected the world markets in the 1930s. Industries that suffered the most included agriculture, mining, and logging. In 1937, the American economy unexpectedly fell, lasting through most of 1938. Production declined sharply, as did profits and employment. Unemployment jumped from 14.3 per cent in 1937 to 19.0 percent in 1938. The US saw a recession during 1982-83 due to a tight monetary policy to control inflation and sharp correction to over production of the previous decade. This was followed by Black Monday in October 1987, when a stock market collapse saw the Dow Jones Industrial Average plunge by 22.6 percent affecting the lives of millions of Americans. The early 1990s saw a collapse of junk bonds and a financial crisis. The US saw one of its biggest recessions in 2001, ending ten years of growth, the longest expansion on record. From March to November 2001, employment dropped by almost 1.7 million. In the 1990-91 recessions, the GDP fell 1.5 percent from its peak in the second quarter of 1990. The 2001 recession saw a 0.6 percent decline from the peak in the fourth quarter of 2000. The dotcom burst hit the US economy and many developing countries.

The global economic recession has taken its toll on the Indian economy that has led to multi-crore loss in business and export orders, thousands of job losses, especially in key sectors like the IT, automobiles,

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industry and export oriented firms. It has also shaken up the investment arena. It is a difficult phase for a growing economy like India.

In August, 2008 India recorded inflation at its 16 years high of 12.91%. This inflationary situation forced the regulatory bodies of the country to take certain anti-inflationary measures by tightening the monetary policy which in turn made it difficult for institutions and individuals to borrow money from banks. In some ways, this has also contributed to the slowdown in different sectors and can be considered to be the start of slowdown in different sectors in India.

Before this economic crisis, there were more than 1500 software firms in the country. While the employee base of the sector had grown to 5,53,000 (from 4,15,000 in financial year 06). More than 13000 IT companies were operating in Bangalore alone. This sector has been adversely affected by the global crisis. As for the IT industry, nasscom had initially projected a 21-24 percent growth rate for the year 2008, but the software association revised it downward in the wake of the global financial meltdown.

In February 2008, Tata Consultancy Services (TCS) had asked about 500 employees to leave due to non-performance. Panty Computer Systems (PCS) has already laid off around 400 employees, or nearly 3% of its 14,800 workforce, on the same ground, while IBM Corporation followed suit in the case of 700 fresher's. Wipro, the country's third largest IT exporter, is considering firing 3,000 employees over performance-related issues. Other than IT firms, the IT-enabled service derive 75% or more of their revenues from the US. Thus, if the Fortune 500 companies slash their IT budgets, Indian firms could feel the heat.

Industry-wide indications after September, 2008 are also uniformly gloomy. There reports of significant declines in output of automobiles,



commercial vehicles, steel, petrochemicals, construction, real estate, finance, retail activity and many other sectors. Exports fell by 12 percent in dollar terms in October, while core industries slowed to 3.4% during the same month from 4.6% a year ago. The effect of such job (income) losses and pay-cuts has been on demand for goods and services. People either have no money to buy or those who have are postponing their buying because of the economic uncertainties ahead.

The recession has affected in India in many different ways including the following:

1. Declines in foreign direct investment especially reductions in access to loans from banks-India has set up their own sovereign wealth funds to offset this.
2. Recession has cut export prices-but another key effect has been increased volatility of prices-this increases revenue uncertainty for commodity-dependent countries and acts as a barrier against much-needed capital investment.
3. A recession in global tourism-often a significant share of GDP for many poorer nations like India.
4. Rising food prices has created a huge problem of food poverty-the World Bank called this a silent tsunami.
5. Increased unemployment, under-employment puts huge pressure on government finances in India.

The most worrying aspect of a recession is the sustained drop in demand leading to deflation that is often caused by a drop in the supply of money or credit. It is also caused by a contraction in spending, by government or people. Deflation tends to raise unemployment, causing a



vicious spiral. Just to avoid the deflation trap nations is pumping money into their economics disregarding the deficit they are accumulating. This is to stimulate spending and to keep the inflation from falling below a certain level as to become a disincentive to produce.

The following measures can be adopted to tackle the recession

1. Tax cuts are generally the first step any government takes during slump.
2. Government should hike its spending to create more jobs and boost the manufacturing sectors in the country.
3. Government should try to increase the export against the initial export.
4. The way out for builders is to reduce the unrealistic prices of property to back the buyers into the market. And thus raise finances for the incomplete projects that they are developing.
5. The falling rupee against the dollar will bring a boost in the export industry. Thought the buyers in the west might become scare.
6. The oil prices decline will also have a positive impact on the importers.

India has adopted certain measures to combat recession. Since October, 2008 The Reserve Bank of India has cut the rate and the CRR by 350 and 400 basis points respectively. The reverse repo rate has been cut by 200 basis points over the same period. This in turn has made credit cheaper and has increased the overall liquidity in the system. Further, the PSU banks of the country have decreased the home loan rates. This is expected to this government has proposed to cut service tax and excise duty on most goods.

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Conclusion:

Developing countries are the worst victims of Global Economic Crisis. India is not an exception from the same situation. International Organization like IMF, World Bank etc., Should not be passive observers but they must play active role in controlling the Global Economic Crisis. In addition to this the developed countries like USA, UK and USSR must try to put their efforts to control the Recession. Government must adapt all possible devices to come out from the existing situation.

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WORK EXTRINSIC AND INTRINSIC MOTIVATION AMONG NURSES

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Work motivation is considered to be one of the important topics in organisational research, it has been the subject of more theories than any other topic (Baron,1991). It is defined as “set of energetic forces that originate both within as well as beyond an individual’s being to initiate work related behaviour, and to determine its form, direction, intensity, and duration” (Pinder, 2008). In the present scenario, it is important to understand what motivates an employee is central and sometimes could be of cardinal value for the organisations overall survival and growth. Since a motivated work force develops a competitive advantage in any work environment. Further, one has to understand that motivation is a person’s internal disposition to be concerned with how he favours positive incentives over negative incentives. To further this, an incentive is the anticipated reward or aversive event available in the environment for the employee to choose between (Deckers, 2010). While motivation can often be used as a tool to help predict behavior, it varies greatly among individuals and must often be combined with ability and environmental factors to actually influence behavior and performance. Because of motivation’s role in influencing workplace behavior and performance, it is key for organizations to understand and to structure the work environment to encourage productive behaviors and discourage those that are unproductive.

An issue that warrants attention in motivation research is the method and approach used to assess the concept of motivation. Assessments



of employee motivation need to be practical, fast, flexible, and accessible through different means. Short, theory-grounded measures leading to concrete applied venues are key to addressing these organisational needs. This study will thus define and review different approaches assessing motivation in the hospital workplace especially with regard to nursing employees. Emphasis will be given to intrinsic and extrinsic motivation among nurses grounded in self determination theories, which should prove valuable and practical for use in rapidly changing hospital organisational environments (Tremblay & Blanchard, 2009).

More and more firms are realizing the importance of having motivated and satisfied employees. Employee motivation is a crucial element in a successful organisation. Employee satisfaction is often referred to in a same way as employee motivation. However, being motivated and being satisfied are two related but different things. The word motivation comes from the ancient Latin verb 'movere', which means to urge or to move. The problem with finding a suitable definition of motivation is that there are so many definitions available in the literature. This could be due to the many different motivational theories present and the various fields where motivation is used.

Managers and supervisors acknowledge the importance of motivation in organizations for creating a successful enterprise. Employees that are motivated to work long and hard are normally more productive than employees that are not motivated (Daniels and Radebaugh, 2001). Daniels and Radebaugh (2001) continue by stating that higher productivity, caused by increased work motivation, normally reduces production costs. As mentioned before, there are several definitions on motivation available. One of them is Robbins (2003), who defines motivation as the eagerness to do something, conditioned by this action's capacity to satisfy some specific



need for the individual. Another definition is given by Kinicki and Kreitner (2003), who depict motivation as those psychological processes that cause the stimulation, direction, and determination of voluntary actions that are goal oriented. In other words, motivation is what drives individuals to do what they do. Motivation can be traced back in numerous aspects.

Given today's economy, a motivated workforce represents both a competitive advantage and a critical strategic asset in any work environment. In organisational research, work motivation has been the subject of more theories than any other topic (Baron, 1991); organisational researchers see employee motivation as a fundamental building block in the development of effective theories (Steers, Mowday, & Shapiro, 2004). Indeed, programs of research guided by expectancy-valence theory, self-regulation and goal-setting formulations, social exchange and justice approaches, and self perspective (e.g., self-determination theory [SDT]; Deci & Ryan, 1985, 2000) have stimulated the development of organisational and managerial practises to promote positive worker attitudes (e.g., employee commitment) and enhance job performance (e.g., individual and team effort). Thus understanding the intrinsic and extrinsic motivations of nurses the hospitals could promote positive worker attitudes like employee commitment, and enhance perceived organisation support, job satisfaction, and their overall team effort especially in Indian context.

METHOD

Objectives of the Study:

The objectives of the study include:

- To assess work extrinsic and intrinsic motivation orientation among nurses.



- To examine the influence of demographic variables (age, experience and family size) on work extrinsic and intrinsic motivational orientation among nurses.

Hypothesis:

- There will be differences on motivational orientations among nurses
- There will be significant influence of demographic variables on motivational orientations of nurses.

Tools or Measures:

The Work Extrinsic and Intrinsic Motivation Scale (WEIMS) developed by Tremblay & Blanchard (2009) is an 18-item measure of work motivation grounded on Self Determination Theory. At the low-end lies amotivation (AMO) in which individuals either lack the intention to act or act passively. Next along the continuum is external regulation (ER), namely, doing an activity only to obtain a reward. Next is introjected regulation (INTRO), namely the regulation of behaviour through self-worth contingencies (e.g., self-esteem, guilt). Then there is identified regulation (IDEN), which refers to doing an activity because one identifies with its value or meaning, and accepts it as one's own. Finally, there is integrated regulation (INTEG), which refers to identifying with the value of an activity to the point that it becomes part of the individual's sense of self. Identification, integration, and intrinsic motivation are the prototype of self-determined motivations (Intrinsically Motivated) whereas amotivation, external regulation, and introjection are categorized as non self-determined motivations (Extrinsically Motivated).

Scoring:

The WEIMS is divided into three-item six subscales, which correspond to the six types of motivation postulated by SDT (i.e., intrinsic



motivation, integrated, identified, introjected and external regulations, and amotivation). Participants were asked to indicate on a Likert-type scale ranging from 1 (*does not correspond at all*) to 5 (*corresponds exactly*) the extent to which the items represent the reasons they are presently involved in their work. Raw scores for each factor are summed up to get the total score for those particular factors.

Reliability and Validity:

Previous research has shown that the self-determination index displays high levels of reliability and validity (e.g., Fortier, Vallerand, & Guay, 1995; Green-Demers, Pelletier, & Me´nard, 1997; Pelletier, Dion, Slovinec-D’Angelo, & Reid, 2004). The internal consistency (Cronbach’s alpha coefficient) of the W–SDI was .84. The Cronbach’s alphas assessing the internal consistency of the WEIMS’s six subscales. Alpha values ranged from .64 to .83, suggesting adequate reliability (IM _ .80; INTEG _ .83; IDEN _ .67; INTRO _ .70; EXT _ .77; AMO _ .64). Overall, considering the fact that these subscales consist of only three indicators each, they show adequate internal consistency.

Sample

A total of 96 nurses were selected using stratified random sample technique, the age range of the nurses were between 19 and 38 years with a mean age of 22.54 (± 2.45) years. The study examined the motivational orientations of nurses and to determine whether these orientations varied according to age, family size and so on. The sample constituted mostly unmarried nurses and who worked at different shift timings from Seven Hills Health care Visakhapatnam, Andhra Pradesh. Of the 96 nurses 77 (80 %) were Telugu speaking, and 19 (20%) belong to non Telugu speaking.



Research Design

This is a quantitative study utilizing survey research method and exploratory in nature, it exploratory in the sense that the organisation is looking into aspects of the motivations among their nurses for the first time. So as to enable them to understand the training needs of their nursing work force.

Data obtained from the samples was analyzed using SPSS to assess the motivational orientations. t-tests were used to observe the differences and compare means between demographic groups of the nurses. Simple frequency and descriptive statistics were used for profiling the sample.

RESULTS AND DISCUSSION

The result of the present study on identifying motivational orientation among nurses is presented below:

A profile of the sample is presented in Table I.

Table I: Profile of the sample

		N=96	%
Age	Less than 22	53	55
	More than 23	43	45
Mother Tongue (Language)	Telugu Speaking	77	80
	Non Telugu Speaking	19	20
Experience	Less than a Year	45	47
	More than a Year	51	53
Family Size	Less than 4	59	61
	More than 5	37	39

Table I provides profile of the sample consisting of 96 nurses that includes 19 Non Telugu speaking (20%) and 77 Telugu speaking (80%) consisting more than half of the sample. The sample has almost equal representation of two groups on experience level, where nurses working less than one year consist 47% and the other half is represented by nurses



working more than one year. Family size divided into less than 4 members and 5 or more than 5 members. 4 or less than 4 members include 61% and self 5 or more than 5 members include 31%. It has to be noted here that since most of the sample consisting of Telugu speaking nurses further analysis like t test were not executed between Telugu speaking and Non Telugu speaking groups.

This section presents the results regarding the prevalence of motivational orientations across the sample N=96 for the mean age of 22.54 (± 2.45) years. Identified Regulation, Integrated Regulation, and Intrinsic motivation are the prototype of Self Determined Motivations (Intrinsically Motivated) whereas Introjected Regulation, External Regulation and Amotivation are categorized as Non Self Determined Motivations (Extrinsically Motivated).

Table II: Prevalence of Motivational Orientations in Nurses

Motivational Orientation	Mean	SD
Intrinsic Motivation	18.58	2.59
Integrated Regulation	17.27	2.74
Identified Regulation	16.64	3.17
Introjected Regulation	18.63	2.43
External Regulation	12.32	4.35
Amotivation	14.32	3.53
Self Determined Motivation (SDM)	52.50	6.67
Non Self Determined Motivation (Non SDM)	45.28	6.66

The sample selected for examining the prevalence of motivational orientations is provided in table 2. We can observe that most of the nurses seem to be more Self Determined Motivation (Intrinsically Motivated) with a mean score of 52.50 followed by Non Self Determined Motivation (Extrinsically Motivated) 45.28. Almost similar means were observed on Intrinsic Motivation (18.58), Integrated Regulation (17.27), Identified Regulation (16.64) and Introjected Regulation (18.63). Nurses have shown



low scores for External Regulation (12.32) and Amotivation (14.32) orientations. The table shows lower mean scores for Non SDM that is Extrinsic Motivation when compared with Intrinsic Motivation (SDM). It has to be noted that the sample covered seems to be more intrinsically motivated than extrinsically.

The influence of demographic variables like age, experience, family size on motivational orientations among the nursing sample is presented below. Subgroups were formed on the basis of the type of mean age, years of experience and family size. Since almost all of them are Telugu speaking in the present sample, language was not considered for further analysis. Statistical analysis like t-tests was used to see whether significant differences were present between the two sub groups. Thus this section presents the results regarding the influence of demographic variables on motivational orientations among nursing groups.

Table III: Influence of Age on Work Extrinsic and Intrinsic Motivational Orientations

Motivational Orientation	Mean/ SD	Below 22 years (n=53)	Above 23 years (n=43)	t
Intrinsic Motivation	Mean	18.58	18.58	.006
	SD	2.34	2.90	
Integrated Regulation	Mean	17.66	16.79	1.545
	SD	2.65	2.80	
Identified Regulation	Mean	16.96	16.25	1.079
	SD	3.11	3.25	
Introjected Regulation	Mean	18.50	18.79	.574
	SD	2.67	2.12	
External Regulation	Mean	12.47	12.13	.364
	SD	4.04	4.71	
Amotivation	Mean	14.66	13.90	1.038
	SD	3.48	3.60	
Self Determined Motivation	Mean	53.20	51.62	1.152
	SD	6.57	6.75	
Non Self Determined Motivation	Mean	45.64	44.83	.573
	SD	6.04	7.41	



Age in general has been found to have no significant influence on the motivational orientation among nurses (see table 3). However we can observe from the table that nurses whose age is below 22 years reported slightly higher means on Self Determined Motivation and on Non Self Determined motivations when compared with the older aged group. Whereas, older nurses reported higher means on Introjected Regulation. As pointed earlier no significant differences were found with regard to age of the nurses on motivational orientations.

Table IV: Influence of Work Experience on Work Extrinsic and Intrinsic Motivational Orientations

Motivational Orientation	Mean/ SD	Less than a Year (n=45)	More than a Year (n=51)	t
Intrinsic Motivation	Mean	18.26	18.86	1.136
	SD	2.36	2.77	
Integrated Regulation	Mean	17.62	16.96	1.179
	SD	2.74	2.73	
Identified Regulation	Mean	17.26	16.09	1.809
	SD	3.28	3.00	
Introjected Regulation	Mean	18.62	18.64	.049
	SD	2.61	2.29	
External Regulation	Mean	13.15	11.58	1.786
	SD	4.17	4.41	
Amotivation	Mean	14.88	13.82	1.498
	SD	3.17	3.78	
Self Determined Motivation	Mean	53.15	51.92	.904
	SD	6.77	6.59	
Non Self Determined Motivation	Mean	46.66	44.05	1.940*
	SD	6.58	6.56	

Note: * = $p < .05$

From table 4 we can observe the influence of work experience on motivational orientation scales. A significant influence of experience is noted on Non Self Determined Motivation ($t = 1.94$; $p < .05$). Nurses who have worked more than one year seemed to be having lower mean scores when compared with those who have worked less than a year. It has to be observed here that Non Self Determined Motivation include the total scores of Amotivation, External regulation, and Introjection which are further



categorized as extrinsically motivated. This could be that nurses with less than one year experience seems to be more extrinsically motivated.

We can observe from the table that these nurses who have less than a year experience have higher mean score for External Regulation (mean=13.15; SD=4.17) which indicates that they perform a activity to obtain a reward which was not the case for more experienced nurses. Although intrinsic motivation is a very crucial type of motivation, most of the activities performed by humans are not intrinsically motivated activities. This can be seen after the early years of a human being, when the freedom of being moved pure by one's own interests becomes overshadowed by social demands and roles one has to play that require persons to take responsibility for tasks that are not initially intrinsically motivating (Deci and Ryan, 1985).

Table V: Influence of Family Size on Work Extrinsic and Intrinsic Motivational Orientations

Motivational Orientation	Mean/ SD	Less than 4 (n=59)	More than 5 (n=37)	t
Intrinsic Motivation	Mean	18.33	18.97	1.218
	SD	2.75	2.29	
Integrated Regulation	Mean	17.06	17.59	.880
	SD	2.56	3.02	
Identified Regulation	Mean	15.93	17.78	2.958**
	SD	3.18	2.84	
Introjected Regulation	Mean	18.37	19.05	1.339
	SD	2.42	2.42	
External Regulation	Mean	12.01	12.81	.860
	SD	4.28	4.47	
Amotivation	Mean	14.00	14.83	1.071
	SD	3.17	4.03	
Self Determined Motivation	Mean	51.33	54.35	2.227*
	SD	6.68	6.29	
Non Self Determined Motivation	Mean	44.38	46.70	1.615
	SD	6.22	7.18	

Note: ** = $p < .01$; * = $p < .05$



From table 5 we can observe the influence of family size on motivational orientation scales. A significant influence of family size is noted on Identified Regulation ($t = 2.958$; $p < .01$) and on Self Determined Motivation ($t = 2.227$; $p < .05$). Nurses who have larger family size seemed to be having significantly higher mean scores when compared with those who have lesser family members. It has to be observed here that Self Determined Motivation include the total scores of Intrinsic motivation, Integrated regulation, and Identified regulation which are further categorized as intrinsically motivated. This could be that nurses with larger family size seems to be more intrinsically motivated. Identified regulation indicates that these nurses with more family members seems to be doing an activity because they identify the profession with its value or meaning, and accepts it as one's own. Integrated regulation refers to identifying with the value of an activity to the point that it becomes part of the individual's sense of self. Supported literature do indicate that this motivation comes from internal tendencies and can direct and motivate behaviour without the presence of constraints or rewards (Deci and Ryan, 1985). Translating intrinsic motivation to the work environment, it holds that employees genuinely care about their work, that employees search for better ways to get their work done, and that employees are enthusiastic and committed to perform well at their jobs (Thomas, 2000). According to Amabile (1993), intrinsic motivators are necessarily bound up with work itself. Thus the above results indicate that work experience levels and family size have considerable significant influence on Work Extrinsic and Intrinsic Motivational orientations among nurses.

SUMMARY

Motivation was considered to be one the most essential psychological concepts in education. One theoretical view, Self-Determination Theory



(SDT), believed that individual behaviour can be intrinsically motivated, extrinsically motivated, or amotivated. This theoretical approach to academic motivation has produced an extensive amount of research relevant to the discipline of education and organisations (Deci & Ryan, 1985, 1991). The purpose of this study was to examine the motivational orientations (Identification, integration, and intrinsic motivation are the prototype of self-determined motivations whereas amotivation, external regulation, and introjection are categorized as non self-determined motivations) of nurses. In addition, the study looked at the influences of demographic characteristics like age, experience, and family size on motivational orientations. A total of 96 nurses were selected using stratified random sample technique, the age range of the nurses were between 19 and 38 years with a mean age of 22.54 (± 2.45) years. The sample constituted mostly unmarried nurses and who worked at different shift timings from Seven Hills Health care Visakhapatnam, Andhra Pradesh. Data was obtained from administering the English and Telugu versions of Work Extrinsic and Intrinsic Motivation Scale (WEIMS). Findings indicate that nurses who have worked more than one year have significantly lower mean scores on Non Self Determined Motivation (Extrinsic Motivation) when compared with those who have worked less than a year. That is nurses with lesser experience tend to be more extrinsically motivated. Nurses who have larger family size seemed to be having significantly higher mean scores on Identified Regulation and on Self Determined Motivation (Intrinsic Motivation) when compared with those who have lesser family members. The results are to be considered and conclusions to be drawn keeping in mind the following limitations: The present findings are based on a small sample. A larger sample for each category would have thrown more light. It has to be noted that majority of participants predominantly belong to



Telugu speaking population. Another limitation of this study is that it only explored a direct influence of demographic variables on motivational orientation. It is possible that other psychosocial variables, such as social support, birth order, SES etc., may influence these orientations.

SUGGESTIONS

The WEIMS forms enable professionals from many backgrounds to quickly and effectively assess diverse aspects of motivational orientations. Further studies can use a wider range of population. Both the English Forms and the Telugu forms shall be of immense benefit in the organizational and clinical settings, so standardised language specific development of scales should be incorporated. There is a need to broaden the scope of the study by including other variables that influence the motivational orientations. Understanding motivational orientations will serve as a valuable tool to health organizations seeking ways to help the workforce improve its overall job satisfaction. This information can then be utilized when developing interventions (psycho education, counselling etc) which in turn help the subject to better equip to his living conditions.

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**A STUDY OF RISK FACTORS ON THE FAMILY LIFE AMONG
OVERTIME APPAREL WOMEN WORKERS IN MYSORE CITY-
A SOUTHERN INTERIOR PART OF KARNATAKA**

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Introduction:

An Apparel industry is booming in India. The economic importance of the garment industry has increased phenomenally since the introduction of economic reforms in 1991. Karnataka is one of the states where the garment industry is witnessing a rapid growth^[1]. A major chunk of almost 67.3% of women is working in this segment in Karnataka state capital^[2, 3]. The most neglected southern interior part of Karnataka is an upcoming area in garment segment, especially Mysore city. According to 2011 survey of Mysore district statistical department almost 5600 workers were working in this segment^[4]. However from the department of factories, Mysore, it came to know that total sanctioned post was 6199. The total sanctioned women posts were 4389. Only 3280 women workers were employed in Mysore city junction^[5]. Also that from factories act (1948, section 51 and 54) a worker should not work more than 48 hours per week, else it was considered as overtime work load with a condition that not exceeding 9 hours in any given day.^[6] However, for one or the other reasons, especially in apparels, this rule had been totally violated. As a result overtime workload had direct impact on the risk factors of family life. It was important to know what all professional factors contributing to the family life issues among the major chunk of women workers' and to know the gray areas of their life. Also that company's strategies were also based on



the opinion of worker's. In view of this, the paper can also be understood in company's perspective, in the sense that to know the gray areas where the company had to work towards balancing the worker's issues and non-issues, so that work environment should not pamper. In this connection, we planned a cross sectional study to study the implication of risk factors with respect to the social dimension specifically the professional life on the family life of overtime apparel women workers in a district head quarter of Mysore. For easy write up, the selected professional life factors and family life factors were abbreviated suitably and was tabulated in table 2. Throughout the paper we use the abbreviation. Objectives were listed below. Objectives can be understood in worker's and company's perspectives.

Objectives:

1. To find whether professional factors had any influence on family life factors include issues and non-issues.
2. To find important professional factors contributing to the family life issues for a major chunk of overtime women workers.
3. To find sub set of professional life factors contributing to different family life issues and non-issues, as a whole.
4. To find sub set of professional life factors contributing to each family life issues and non-issues.

Material and method: A total of 100 overtime apparel women workers were sampled from seven apparel companies in Mysore. An inflated sample size was estimated using the estimation technique with a proportion of 67.3% women workers in the apparel segment, level of significance 5% and an admissible error of 10%. A stratified simple random sampling technique



with 'The Rand Corporation' random number table was used for the selection purpose^[7,8]. The total woman workers had been distributed according to the registered factories. The list of registered factories had been obtained from the Department of factories and boilers, Mysore. Thus the 'factory registration' was the stratification factor. The seniority list of women employees had been collected from the selected factories human resource department and once again using the Rand number table, first column, first page, the required number of the overtime employees had been selected. If the random number obtained was lesser than the total number of women employees in the respective apparel factory, the women with corresponding serial number was selected; else that particular random number was rejected. The next random number was selected and checked for its belongingness. This process was repeated till the respective number of selection was met. The written consent form had been taken from the selected subjects. The closed type, pretested and structured questionnaire was administered on the selected subjects at one point of time. As a result we have adopted a cross sectional study. The objective was met using statistical analysis like proportion, chi-square test for proportions, Pareto chart and line chart.

Result: The sample size for different apparel factories was given in table 1. The total sample size was 100. Table 2 was providing the information on the cell frequency. It was noted that 75% women with s1 were happy with f7 and 79% did not have f5 i.e. time for their own development. 518 did not have freedom in utilizing their salary across all professional factors. 453 had encouragement from their family to continue with the profession. From table 3, it was observed that the null hypothesis of independence of professional life and family life issues was defeated with chi-square p-value 0.047. Also that, dependency among professional life factors and family



life non-issues was established with p-value 0.024. As family life issues were bogging us, it was found that s1,s2,s4 and s5 professional life factors contributed 80% variations in the family life issues using over imposed cumulative percent line Pareto charts. From the last two column of table , it was found that , all professional factors contributed to the significance across the family life issues and non-issues, as all p-values were less than 0.0005. The fourth objective was met by analyzing the cell contribution to rows significance with the alternative family life issues exceed the non-issues. As a result , from table3, the insignificance were achieved for f1/s6, f3/s3 and s6, f4/s1, s2, s4 and s5, and f5/s3 and s6. Rest were found significant. The respective cell adjusted p-values were entered in table 3. Similarly , the professional factors impact on the family life non-issues had been analysed and p-value results were found in table3. Figure 2, supports table 3, an easier way of finding the cell significance and also compares professional life factors.

Discussion: Karnataka is one of the states where the garment industry is witnessing a rapid growth. However the southern interior part of Karnataka, an upcoming area in garment segment, especially the Mysore city was neglected. In the apparel segment , overtime was a concern for the employees. Overtime means, according to the factories act (1948, section 51 and 54) a worker should not work more than 48 hours per week , else it is considered as overtime work load with a condition that not exceeding 9 hours in any given day. As a result cross sectional study had been planned to study the implication of professional life factors on the family life of overtime apparel women workers in a district head quarter of Mysore. Using the estimation technique with a proportion of 67.3% women workers in the apparel segment, level of significance 5% and an admissible error of 10% , an inflated sample size was estimated at 87. However, a total of 100



overtime apparel women workers were sampled from seven apparel companies in Mysore. A stratified simple random sampling technique having a stratification factor 'factory registration' was achieved and with the help of 'The Rand Corporation' random number table the selection was done. Table 1 provides the distribution of total woman workers to the registered factories. The list of registered factories had been obtained from the Department of factories and boilers, Mysore. The seniority list of women employees had been collected from the selected factories human resource department and once again using the Rand number table, first column, first page, the required number of overtime employees had been selected. If the random number obtained was lesser than the total number of women employees in the respective apparel factory, the women with corresponding serial number was selected; else that particular random number was rejected. The next random number was selected and checked for its belongingness. This process was repeated till the respective number of selection was met. The written consent form had been taken from both the company and the selected subjects. The sampled subjects were administered using the closed type, pretested and structured questionnaire. In table 2, 100 members had answered every family life factor with respect to each professional factor, as a result, the total number of times a family life factor addressed was 600. In view of this, 86.3% said they want freedom for salary utilization, 63% said issue with the time for self development. However, 72% had a family support and 75% had the opinion of family encouragement. This indicated that, family encouragement and support was available for spouse overtime work and on the other hand family was not giving them the freedom in utilizing their salary and to the cost of the lack of time for self development. It was important to detect the important risk factors i.e. professional factors those contributing to the family issues.



It was achieved through Pareto chart concept that says that the 20% vital few creating 80% of the problems. Pareto analysis uses the Pareto principle^[9], also called the 80:20 rule, to analyze and display the main professional life risk factors. This means that 80 percent of problems stem from 20 percent of the possible causes. The numbers 80 and 20 are not meant to be absolutes, however the focus was on the “vital few” problems (those in the 20% percent category) rather than on the “trivial many” to understand main risk factors impacting the family issues. A Pareto chart is a bar chart that displays the relative importance of problems in a format that is very easy to interpret. The most important risk factor was represented by the tallest bar, the next most risky factor was represented by the next tallest bar, and so on. In figure 2 , bars were constructed according to the average number of women with family life issues. The Pareto chart shown in figure 2 was a super imposed Pareto chart, super imposed by the cumulative relative frequency line chart. This helped to find out cumulative 80% problem causers. According to the chart it was the first four factors causing almost 80% of the problems in the family life issues. The important professional factors were according to the figure 2 was s1,s2,s4 and s5. The last cell chi-square p-value (0.047) in Table 3 indicated that the professional life factors and family life issue factors were dependent on each other and was dependent on family life non-issue factors too with p-value 0.025 . It was curious to find what all professional factors contributing to the significance of overall significance. The last column p-values in table 3 (all p-values < 0.005) indicated that the no significance difference across different family life issues had been defeated for all professional factors. Similarly, the significance had been achieved across the non-issues family life factors for different professional life factors, last but one column in table 3. This paved the way to find what all cells



contributing to the significance of different family life issues and non-issues for each professional factors. Cells corresponding to s6 of f1, s3, s6 of f3, s1,s2,s4,s5 of f4 and s3,s6 of f6 are insignificant for the alternative that family issues are greater than the non-issues. The rest cells were contributing to the significance of family issues for individual professional factors. Similarly it could be understood for the column wise significance across professional factors for given family life issues and non-issues separately. Details of chi-square p-values can be obtained at last two rows of table 3. All adjusted p-values were compared with the 5% level of significance to make the decision.

Table 1: Sampling distribution of women worker

Factory Serial number	Women employed	Distribution of Sample size
1614	220	07
1722	1166	35
1541	1300	39
1821	125	04
1253	65	02
1693	400	12
1664	4	01
Total	3280	100

Interpretation: Information regarding 'Factory serial number' and 'Women employed' were provided by the 'The Department of Factories and Boilers', Mysore. Distribution of sample size was the number of overtime women workers selected given the factory.



Table 2: Bivariate distribution table for professional life and family life

Professional life	Freedom of expression (f1)		Family/husband support for employment (f2)		No Change of holiday due to work pressure (f3)		Sufficient time for children/husband (f4)		Time for self development (f5)		Freedom for salary utilization (f6)		Family encouragement for employment (f7)	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Balance between personal and professional life (s1)	19	81	70	30	18	82	41	59	21	79	11	89	75	25
Changing job (s2)	83	67	64	36	31	69	54	46	34	66	11	89	66	34
Workplace problems (s3)	74	26	81	19	51	49	69	39	56	44	17	83	83	17
Adjustment with working atmosphere (s4)	32	68	71	29	25	75	53	47	28	72	12	88	77	23
Work and social engagement (s5)	32	68	36	34	29	71	51	49	27	73	09	91	68	32
Disturbance in professional life (s6)	58	42	84	16	50	50	69	31	56	44	22	78	84	16
Total	245 (41.3%)	352 (58.67%)	436 (72.67%)	164 (27.33%)	204 (34%)	396 (66%)	337 (56.2%)	271 (45.17%)	222 (37%)	378 (63%)	82 (13.7%)	518 (86.33%)	453 (75.5%)	147 (24.5%)

Interpretation: 75% women with s1 were happy with f7 and 79% did not have f5 i.e. time for their own development. 518 did not have freedom in utilizing their salary across all professional factors. 453 had encouragement from their family to continue with the profession.

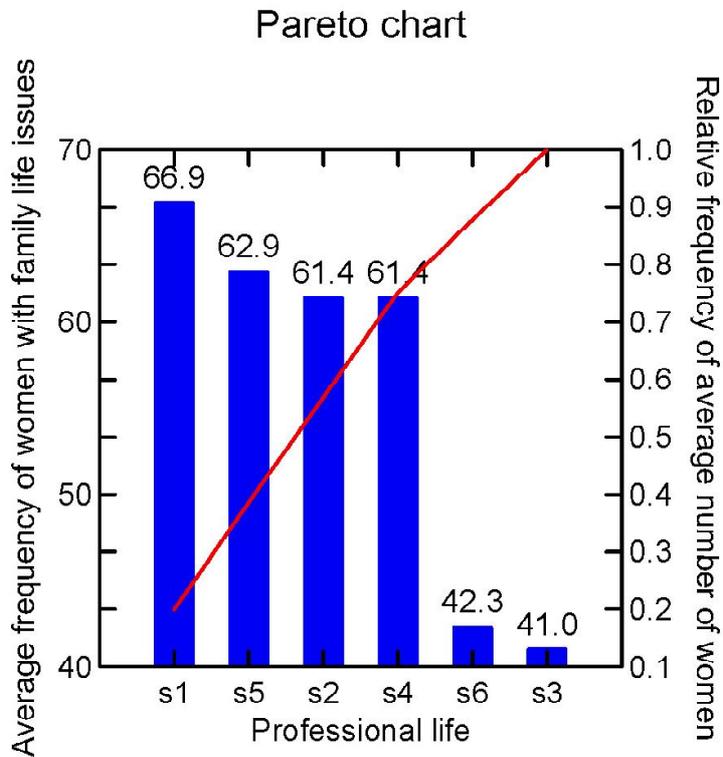


Table3: Chi-square p-value (with Bonferroni adjusted α)

Family life	f1	f2	f3	f4	f5	f6	f7	Family life : Yes ($\alpha=0.0083$)	Family life : No ($\alpha=0.0083$)
Professional life	($\alpha=0.0011$)								
s1	0.000	0.000	0.000	0.07*	0.000	0.000	0.000	0.000	0.000
s2	0.001*	0.005*	0.000	0.42*	0.000	0.000	0.001*	0.000	0.000
s3	0.000	0.000	0.84*	0.000	0.23*	0.000	0.000	0.000	0.000
s4	0.000	0.000	0.000	0.54*	0.000	0.000	0.000	0.000	0.000
s5	0.000	0.001*	0.000	0.84*	0.000	0.000	0.000	0.000	0.000
s6	0.11*	0.000	1*	0.000	0.23*	0.000	0.000	0.000	0.000
Family life : Yes ($\alpha=0.0071$)	0.000	0.47*	0.000	0.05*	0.000	0.12*	0.59*	0.025 ($\alpha=5\%$)	
Family life : No ($\alpha=0.0071$)	0.000	0.035*	0.016*	0.07*	0.002	0.92*	0.045*		0.0479 ($\alpha=5\%$)

Interpretation: At Bonferroni adjusted 5% significance level, * p-values in the table indicate insignificance. Last two columns p-values check for the equality of proportions across family life values 'Yes' and 'No' for a given professional life. Similarly, Last two rows p-values check for the equality of proportions across professional life given family life values 'Yes' and 'No'. p-values in bold font check for the independence of family life and professional life parameters as a whole for 'Yes' and 'No' values of family life separately.

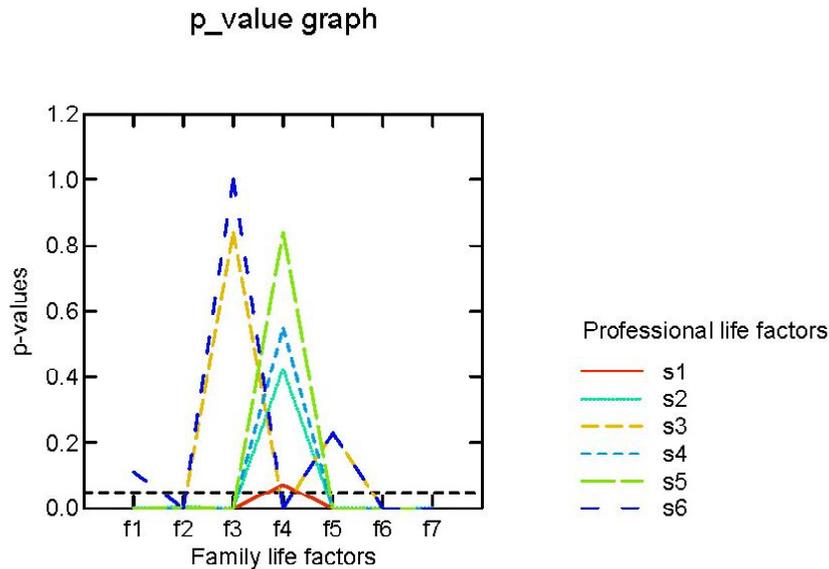
Figure1:



Interpretation: s1, s2, s4, s5 were main professional factors causing 80% of family issues among overtime working apparel women. s1 had, with 66.9, maximum average number of women having family issues and was followed by s5 with 62.9. s3 was the least problem creator with 41 as the average.



Figure 2: p-value graph for equality of proportions between 'yes' and 'no' values of family life factors.



Interpretation: Horizontal dotted line was the 0.0011 level of significance line. p-values above the horizontal dotted line indicate the insignificance.

Conclusion: It was concluded that the family encouragement and support was available for spouse overtime work and on the other hand family was not giving them the freedom in utilizing their salary and to the cost of the lack of time for self development. More than 80% of overtime women worker's family life issues were affected by s1, s2, s4 and s5. Other than the Cells corresponding to s2,s6 of f1, s2,s5 of f2, s3, s6 of f3, s1,s2,s4,s5 of f4, s3,s6 of f6 and s2 of f7 were contributing to overall significance of professional factors and family life issue factors.

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A COMPARATIVE STUDY OF SUPER LUMINESCENT DIODE (SLED) AND VERTICAL-CAVITY SURFACE-EMITTING LASER (VCSEL) AS A SOURCE FOR FIBER OPTIC GYROSCOPE

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Introduction:

A fiber optic gyroscope (FOG) is an angular rotation measuring instrument. It consists of an optical source, an optical module and a photo detector. Different light sources are used in FOG. Out of those two types sources- super luminescent diode (SLED or SLD) and Vertical cavity surface emitting laser (VCSEL) are showing great potential in FOG application. An SLED is an edge-emitting semiconductor light source based on super luminescence. It combines the high power and brightness of laser diodes with the low coherence of conventional light-emitting diodes. Its emission band is 5–100 nm wide. A super luminescent light emitting diode is, similar to a laser diode, based on an electrically driven pn-junction that, when biased in forward direction, becomes optically active and generates amplified spontaneous emission over a wide range of wavelengths. The peak wavelength and the intensity of the SLED depend on the active material composition and on the injection current level. The vertical-cavity surface-emitting laser (VCSEL) A class of semiconductor lasers that can be monolithically fabricated [2]. The structure common to most VCSELs consists of two parallel reflectors which sandwich a thin active layer[2]. The reflectivity necessary to reach the lasing threshold should normally be higher than 99.9%[2].



Differential Quantum efficiency:

The differential quantum efficiency of an SLED can be written as

$$\eta_d = \eta_i \frac{\ln(\frac{1}{R})}{\alpha L + \log(\frac{1}{R})} [3]$$

The differential quantum efficiency of a VCSEL can be written as,

$$\eta_d = \eta_i \frac{\ln(\frac{1}{R})}{2\alpha L + \log(\frac{1}{R})} [4]$$

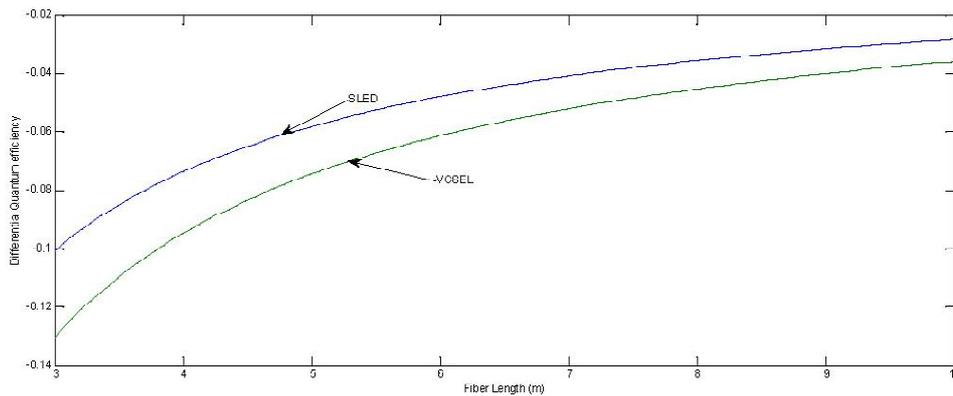
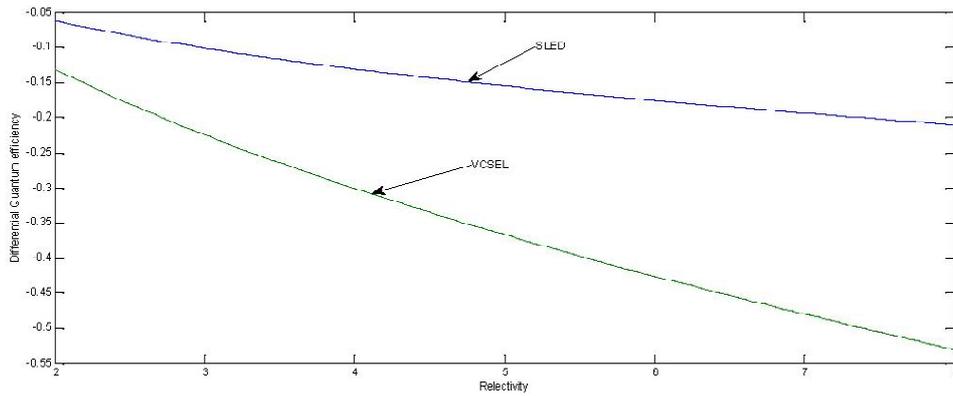
Where,

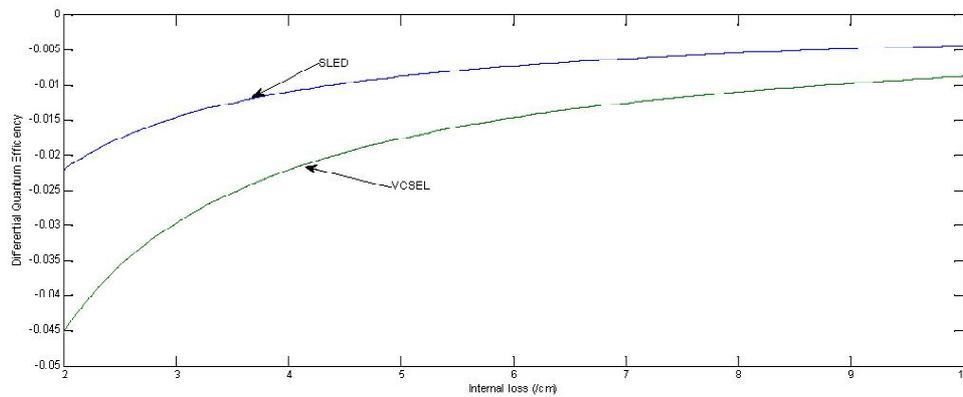
$\eta_i \rightarrow$ Internal Quantum efficiency

$\alpha \rightarrow$ Internal loss

$L \rightarrow$ Length of the Channel

$R \rightarrow$ Reflectivity





Conclusion: a comparison between SLED and VCSEL as a source in fiber optic gyroscope is presented. The comparison is done by varying the differential quantum efficiency with Fiber length, internal loss and reflectivity. It is found that the SLED is more efficient than the VCSEL.

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CURRENT SCENARIO OF GLOBAL HUMAN RESOURCE DEVELOPMENT

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Introduction:

The future looks even more exciting and threatening. Organizations are gearing up for the difficult times ahead by tapping all the resources on hand. Organizations realize that their people or employees would be one of the prime resources for establishing a competitive edge in the future. Consequently, organizations would require workable strategies to align the individual talents/strengths of their people towards business goals. This is where Human Resources professionals can play a deciding role. They have to face newer challenges, take up different, unprecedented roles and in the process help the business achieve its goals.

More and more employers are assessing the value returned from each dollar spent on employees. They are targeting specific programs and practice to the employees that value them the most and becoming more important than ever. Determining what matter most to employees and aligning expenditures with priorities is a strategic challenges for HRD function. Employee change continuously due, in part to bring changes in personal preference but also in part to the chum that occurs as employees leave and new ones enter the Organization. However, it is neither cost effective nor practical to satisfy every employee. Therefore, understanding employees and issues they face holds the key to the function to respond quickly. It's no secret that employees' attitudes about their jobs, their



benefits and their employers can range from exuberant to sour. What's less well known and harder to find out is exactly what matter to specific types of employees and how effective various types of HRD policies, practices and workplace characteristic are, in spurring employee productivity and retention. Since human resource development and management is culture sensitive.

Human resources development is a continuing process comprising three interdependent Components:

- ✓ Investment in human resources to enhance productive capabilities.
- ✓ Utilization of those human resources to produce increased output.
- ✓ Participation of the human beings who have improved resources (better education, better skills levels etc.) in the consumption of that increased output through a better quality of life.

Sustainable human resources development must involve all three components, as seen in the diagram above. At a national level, investment in human resources must be turned into effective utilization of those human resources if national output is to be increased on a sustainable basis. At an individual level, investment in human resources improves earning capabilities. Therefore individuals and families have more money to do many things including pay for their own further skills development. There is a very strong link between investing inhuman resources development and improvements in the quality of life. Improvements in nutrition, health and education are key elements of an improved quality of life and must be considered important investments in human resources, particularly in developing countries. Human beings cannot be developed if they do not have enough food, are in poor health or cannot read or write. For developing countries, it is extremely important that all members of the society have



access to human resource development activities, especially the poor, women and populations in rural areas.

According to Leonard Nadler, author of Developing Human Resources

- ✓ Training is a learning activity provided by employers to employees, to help them perform, their current jobs more efficiently;
- ✓ Education focuses on learning designed to prepare an individual for a job different than the one currently held; and
- ✓ Development focuses on providing knowledge or skills within a specified area, but is not necessarily job related.

Liberalization has resulted in sudden and increased levels of competition for Indian Organizations from multinational firms, globalization and internalization of domestic businesses, concerns for total quality management, incentives to export, demographic changes in the employee profile, retaining and redeployment of workforce, focus on performance appraisal and career management. Thus, with liberalization there is an increasing pressure on Organizations in India to change from indigenous, costly, suboptimal levels of technology to performance based, competitive and higher technology provision.

Increased competition, technological development, and shorter product life-cycles all suggest that organisations must be able to respond more quickly to changes in the future than they have in the past. These conditions will require that the organizations operate differently. These differences will be seen in structure, decentralized decision-making, fewer or no job classifications, multi-skilled work forces, more effective communication among functional groups. To bring about these changes within the organisation, the HR Professionals need to get in their expertise



and help devolve systems, which support the business needs. The key even then would lie with the Human Resources and not with the computers & machines. The most efficient information systems would be only as good as the "people" who make up the fabric of the company

Indian Organizations have to develop the workforce capable of taking up challenges thrown by the new economic environment. To tackle this challenging situation, Indian academics and practitioners have both advocated the adoption of the concept of human resource development. The adoption of professionalized HRD practices in India is a recent phenomenon, but has gained momentum in the past ten years. Organizations are now asking their HRD departments for innovative approaches and solutions to improve productivity and quality of work life, while aptly coping with an environment of high uncertainty and intense global competition. This requires Indian Organizations to develop a diverse workforce with competitive skill sets. This is difficult given the diverse socio-economic background of Indian workforce coupled with antagonistic nature of trade union and colonial time cumbersome labor laws.

The cross-cultural, cross-border mingling has resulted in the creation of a new class of people, global citizens with global attitudes, taste and networks. Since it unleashes multiple variables, the borderless world precludes immense complexity, complexity in the environment, in inter-organizational relationships, in the modes of conducting business and in socio-cultural diversity. One of the most important duties of the modern HR manager is to get things done through people. He has to bring employees into contact with the organization in such a way that the objectives of both groups are achieved. He must be interested in people, the work and the achievement of assigned objectives. To be effective, he must balance his concern for people and work. In other words he must know how to



utilize human as well as non-human resources while translating goals into action. Here also the role is no different i.e. hiring individuals with requisite skills to do a particular job. The challenge here is developing tools to promote a corporate culture that is almost the same everywhere except that the local sensitivities are taken care of. Also, the deciding upon the top management or key positions gets very tricky. Whether to choose a local from the host country for a key position or deploy one from the headquarters assumes importance; and finally whether or not to have a uniform hiring policy globally remains a big challenge.

Nevertheless an organization can choose to hire according to any of the staffing policies mentioned below:

- **Ethnocentric:** Here the Key management positions are filled by the parent country individuals.
- **Polycentric:** In polycentric staffing policy the host country nationals manage subsidiaries whereas the headquarter positions are held by the parent company nationals.
- **Geocentric:** In this staffing policy the best and the most competent individuals hold key positions irrespective of the nationalities.

Geocentric staffing policy it seems is the best when it comes to Global HRM. The human resources are deployed productively and it also helps build a strong cultural and informal management network. The flip side is that human resources become a bit expensive when hired on a geocentric basis. Besides the national immigration policies may limit implementation.

Global HRM therefore is a very challenging front in HRM. If one is able to strike the right chord in designing structures and controls, the job is half done. Subsidiaries are held together by global HRM, different



subsidiaries can function operate coherently only when it is enabled by efficient structures and control

The challenges for Human Resource Development:

- Changing workforce demographic
- Competing in global economy
- Eliminating the skill gap
- Need for lifelong learning
- Need for Organizational learning

Part of development includes realizing the skills and abilities that employees already have. Even the most well trained employees will perform poorly if they are not assessed properly. Reinforcing previously covered information, teaching new concepts and introducing new ideas are development aspects that must be measured and assessed. Employees need to know what is expected of them. Acceptable performance can only be known if the employees are assessed and if the assessment information is communicated to them. Then, the measurement of what people have learned after training will be more accurate. Feedback from managers to subordinates and vice versa is essential to the development function. Post development evaluation criteria and processes are essential. People-management and management of change issues are the key future training and development needs for both multinational and indigenous organizations. Garavan, Heraty, and Morley discuss the differing interest groups' perceptions on evaluation of HRD programs. Senior and line managers use quantitative measures such as optimal utilization of human resources, increased productivity and enhanced employee flexibility to evaluate HRD success. HRD specialists and individual learners place more



emphasis on qualitative criteria such as the number of training days, how many and who participated, and improved performance and career options. Individual learners were primarily concerned about their enhance

HRD is a relatively young field, and there are significant challenges to its future. Failing to acknowledge these challenges will increasingly marginalize HRD within organizations. The tasks seen as central to the HRD profession will be taken on by others who work in professions more focused on delivering and measuring outcomes, thinking and working systemically, with a sounder theoretical base, with clear standards and ethical codes, with stronger professional bodies and competent practitioners. HRD will be left on the sidelines: a gradually shrinking number of people who write for themselves, focus on internal process issues, and react ineffectively to demands long after they have been formulated. We invite all those with a stake in the future of HRD to join together to grapple with the critical challenges that face our field, engage in deep meaningful dialogue about the challenges, and construct workable, effective, and immediate approaches to addressing the challenges to secure the future of HRD. Our goal is to banish complacency and to encourage dialogue. HRD's human resources are impressive; they must now be focused.

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ISSUES RELATING TO TEACHERS' STAY AT THEIR WORK PLACES – AN ANALYTICAL STUDY

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Introduction

Education does not merely mean the acquisition of knowledge and experiences but it means the development of habits, attitudes and skills, which help a man to lead a full and worthwhile life. The product of education is the complete man and who understands the process of life. Education is important from various points of view. Its field of activity is so wide that all activities and experiences are embraced in its sphere of work. Essentially it is a process of development, a development of the latent inherent capacities of a child to the fullest extent. It sublimates the animal basic instincts in a child to socially useful activities, habits of thinking with spiritual values, so that he is able to form a strong character useful to his own-self and the society of which he is an integral part. Further, education meets the immediate needs of a child and also prepares him for his further life. It cultures the child promoting social and refined patterns of behavior. It also develops all his intellectual and emotional powers, so that he is able to meet the problems of life squarely and solve them successfully. It also develops the social qualities of service, tolerance, co-operation, fellow feeling inspiring the child to lay down all, even his life for the glory and prosperity of his country. Last but not the least, education infuses in the child a spirit of dynamic citizenship which eggs him on in the service of his nation keeping into consideration the international understanding and well-being of humanity as a whole.



Educational standards are determined by the quality of education, the teacher imparts, the curricular of the school and competence of the teacher are interring independent and contribute to the success of the educational system. Both the curricular and teaching techniques have to act as catalyst in developing as strong educational system.

The importance of a teacher in the educational process is unquestionable. However, the entire edifice of education is shaky if the teacher is weak and ineffective. An effective teacher is amongst the foremost factors contributing to educational improvement.

“A true teacher is one who can immediately come down to the level of the students and transfer his soul to the student’ s soul and see through and understand through his mind” – Swami Vivekananda.

A study by Johnson Moore (2006) described the workplace conditions that support effective instruction and professional growth according to recent research. The key workplace conditions includes fair teaching assignments, opportunities for teachers to collaborate with colleagues, extra induction support, ongoing professional development and expanded career opportunities, support for working with students, curricular support for high standards, adequate and safe facilities and a supportive school leadership. The study emphasized the influence of substandard workplace conditions on the high rates at which teachers—especially new teachers—leave their schools or quit the profession altogether. It suggests greater numbers of talented teachers can be retained through improvements in workplace conditions, particularly at hard-to-staff schools. Hirsch & Emerick (2007) writes that if teachers stay away from work place, the lack of time to plan, teach, and assess not only creates stressful work conditions, it diminishes the quality of instruction. By



altering schedules, schools are finding creative ways to provide more instructional time for students and non instructional time for teachers to plan and collaborate with peers. Practices that ensure productive and focused use of this time should also be implemented.

Need and significance

Therefore, the role of teacher in this system of school education is vital and there is a need that the teacher has to stay at work place is also important one to meet and cater the demands of the society. In this juncture the Government of Andhra Pradesh made a policy long back for staying of teachers at working villages along with other department staff like M.R.O's & M.D.O's Office, Panchyathi Office, some other emergency departments like electricity, drinking water supply, public health and sanitation staff, who are linked with the developmental activities in the village along with education.

The district administrations are very much particular to implement this policy of staying at work places and made it compulsory, then the teacher organizations and other trade unions opposed the district collectors orders and not willing to stay at work places because of lack of sufficient facilities in the villages. The research investigator chooses this topic for investigation as it is a new policy and identified the reasons, which are claimed by the concerned teachers at a transparency level. Today every progress of mankind depends upon the mental and physical energy. Both of them depend on the standards of living, which in turn depends on education. Thus education is the critical factor in human development in the country. The quality of education has to be ensured, but the present state affair in our country is not encouraging.



Objectives

1. To study the perceptions of the teachers on educational aspects to stay at work place.
2. To study the perceptions of teachers on administrative aspects to stay at work place.
3. To study the perceptions of teachers on societal aspects to stay at work place.
4. To study the perceptions of teachers on domestic aspects to stay at work place.

Methodology

The study is aimed at knowing the opinion of teachers, parents and school administrative officers on the functioning and benefits of the teachers stay at work place. The method of investigation includes Sample Survey Method, where the data gathered from a relatively large number of cases at a particular time. The size of the sample is 200 teachers were collected from three mandals form different geographic areas in Srikakulam district. These sample mandals are selected randomly in three revenue divisions in the district. Namely they are from Palakonda division Saravakota mandal (semi-tribal), from Srikakulam division Polaki mandal (coastal) and from Tekkali division Kotabommali mandal (plain area). The primary data was computed by using the software called SPSS and tables are generated with t-test and F-test for data analysis.



Table-1: Comparative mean scores of male and female teacher respondent's on different aspects related to stay at work place

Grouping: Gender (df-198) Group 1: Male: 140 Group 2: Female: 60							
Variables	Gender	Mean		St. Dev.		t-value	p
		Male	Female	Male	Female		
Educational Aspects		22.24	21.02	3.79	4.40	1.99*	0.0472
Administrative Aspects		10.97	10.37	1.88	1.96	2.06*	0.0406
Societal Aspects		36.59	37.25	5.43	3.86	0.85	0.3969
Domestic Aspects		32.65	33.52	5.66	4.57	1.05	0.2956

* Significant at 0.05 level Source: Survey data

The above table analyzes comparative mean scores of male and female teacher respondent's on different aspects related to stay at work place. In the educational factors the mean of males (22.24) was significantly higher than the mean of females (21.02) and the standard deviations are 3.79 and 4.40 respectively. The t-value is 1.9972, is significant at 0.05 level. The administrative factors mean of males (10.97) was significantly higher than the mean of females (10.37) and the standard deviations are 1.88 and 1.96 respectively. The t-value is 2.0613, is significant at 0.05 level. The societal factors mean of males (36.59) was less than the mean of females (37.25) and the standard deviations are 5.43 and 3.86 respectively. The t-value is 0.8489, is not significant. The domestic factors the mean of males (32.65) was less than the mean of females (33.52) and the standard deviations are 5.66 and 4.57 respectively. The t-value is 1.0486, is not significant.



Table-2: Comparative mean scores of rural and urban school teacher respondent's on different aspects related to stay at work place

Grouping: Location of School (df-198)						
Group 1: Rural: 192						
Group 2: Urban: 8						
Variables	Location		Mean		St. Dev.	
	Rural	Urban	Rural	Urban	t-value	p
Educational Aspects	21.88	21.88	4.03	3.83	-	1.0000
Administrative Aspects	10.82	10.00	1.90	2.20	1.19	0.2351
Societal Aspects	36.68	39.38	4.99	5.21	1.49	0.1370
Domestic Aspects	32.81	35.38	5.32	5.93	1.33	0.1848

Source: Survey data

The above table analyzes comparative mean scores of rural and urban schoolteacher respondent's on different aspects related to stay at work place. The educational factors mean for rural school teachers (21.88) was equal with the mean of urban school teachers (21.88) and the standard deviations are 4.03 and 3.83 respectively. The administrative factors mean for rural school teachers (10.82) was higher than the mean for urban school teachers (10.00) and the standard deviations are 1.90 and 2.20 respectively. The t-value of 1.1910, is not significant. The societal factors mean of rural school teachers (36.68) was more than the mean of urban school teachers (39.38) and the standard deviations are 4.99 and 5.21 respectively. The t-value is 1.4931 which is not significant. The domestic factors mean for rural school teachers (32.81) was less than the mean of urban school teachers (35.38) and the standard deviations are 5.32 and 5.93 respectively. The t-value is 1.3307, which is not significant.

The Table-3 analyzes the distribution of means of performance among different age-group teachers in different factors regarding teachers stay at work place. The educational aspects mean for below 35 years of age



group teachers is 21.94, between 35 to 50 years of age group teachers is 21.58 and above 50 years of age group teachers is 22.85. Regarding administrative aspects the mean scores of the above three age groups of teachers are 10.82, 10.79 and 10.65 respectively. The mean scores regarding societal aspects for the above three age grouped teachers are 37.40, 36.46 and 35.30 respectively. The means of domestic aspects for the above three age groups of teachers are 33.43, 32.72 and 31.25 respectively.

Table-3: Age wise Distribution of Mean Scores of different aspects regarding teacher stay at work place

Variables \ Age	Below 35 N=95		35-50 N=85		Above 50 N=20		Aggregate N=200	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Educational Aspects	21.94	3.94	21.58	4.23	22.85	3.33	21.88	4.01
Administrative Aspects	10.82	1.95	10.79	1.93	10.65	1.79	10.79	1.92
Societal Aspects	37.40	4.68	36.46	5.40	35.30	4.64	36.79	5.01
Domestic Aspects	33.43	4.93	32.72	5.71	31.25	5.61	32.91	5.36

Source: Survey data

According to the Table-4 the f-values for educational, administrative, societal and domestic aspects of the three different age grouped teachers regarding the teacher stay at work place are 0.84, 0.07, 1.79 and 1.47 which are not significant at any level.

Table-4: ANOVA of the Scores of Aspects Classified According to Age

Variables	Sum of squares		Mean square		F
	Between	Within	Between	Within	
Educational Aspects	26.95	3170.92	13.48	16.10	0.84
Administrative Aspects	0.48	730.70	0.24	3.71	0.07
Societal Aspects	89.07	4912.11	44.54	24.94	1.79
Domestic Aspects	84.10	5028.28	42.05	28.57	1.47

Source: Survey data



This analysis of the table indicates that there is no significant difference among different age grouped teachers in their performance regarding the educational, administrative, societal and domestic aspects which determine the teachers to stay at work place. There is no much difference between different age group teachers on these aspects of stay at work place.

The data reveals that there is a significant difference in the perceptions of male and female teachers on educational and administrative aspects regarding teacher stay at work place, but in societal and domestic aspects there is no much difference between male and female teachers. Among rural and urban school teachers there is no significant difference in their perceptions towards educational, administrative, societal and domestic factors relating to teacher stay at work place. In the educational, administrative, societal and domestic aspects there is no significant difference among different age grouped teachers in their performance regarding teachers stay at work place.

Conclusion

As a whole the analysis pertaining to the views of teachers regarding to their stay at work place on educational, administrative, societal and domestic aspects reveal that, the views of male and female teachers differ from each other. However there is unanimity between male and female teachers, among different age grouped teachers and rural and urban teachers. All the teachers with different levels of background viewed that the teacher's stay at work place will definitely improve the quality of education, the school administration and social life in the villages. They felt that their stay at work place would bring all round development of the students, institutions and the villages where they are working. Be and



large, all the sample teachers are following the governmental instructions in this regard. However they expect that their stay at work place also have to improve their personal and family welfare, which in turn depends upon availability of necessary infrastructure as well as minimum facilities for their comfortable stay at the work place. In this context this paper ultimately concluded that, teachers need very happy and pleasant socio-economic and living surroundings at their work places for their progress and to serve the students, institution and society at their level best.

The above findings of the study ultimately reveals that the teachers stay at their respective work places will have positive impact on educational, administrative and societal dimensions of the socio-economic system. In this regard this study advocates a few policy suggestions, which will be useful to the policy makers as well as different sections concerned with this issue.

An orientation programme needs to be under taken to change the attitude of teachers towards rural places. This kind of orientation programmes usually provides some sort of positive attitude towards villages. Government has to provide residential accommodation to the teachers to enable them to stay at work place. Residential accommodation with all facilities is very much needed to lead healthy and peaceful life. The village community has to be motivated to cooperate with the teachers to be available in the villages. Since without cooperation of villagers the teachers cannot lead the routine and day by day life in the villages because they much depend on the villages fulfill their requirements and focus on the aspects related to the development of villages.



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MAIN CAUSES AND TYPES: ANXIETY

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Introduction

Anxiety is a normal human emotion that everyone experiences at times. Many people feel anxious, or nervous, when faced with a problem at work, before taking a test, or making an important decision. Anxiety disorders, however, are different. They can cause such distress that it interferes with a person's ability to lead a normal life. An anxiety disorder is a serious mental illness. For people with anxiety disorders, worry and fear are constant and overwhelming, and can be crippling. Anxiety can be caused by one, or a combination of factors. These include genetic factors, ongoing stress, family background, physical health issues, or a traumatic event. Anxiety is a generalized mood condition that can often occur without an identifiable triggering stimulus. It is distinguished from fear which is an emotional response to a perceived threat, whereas anxiety is related to situations perceived as uncontrollable or unavoidable. Also, it is a future-oriented mood state in which one is ready or prepared to attempt to cope with upcoming negative events. The physical effects of anxiety may include heart palpitations, muscle weakness, fatigue, nausea, chest pain, shortness of breath, stomach aches or headaches. Also, external signs of anxiety include pale skin, sweating, trembling and papillary dilation. The person who has anxiety might also experience it as a sense of dread or panic. The emotional effects may include 'feelings of apprehension or dread, trouble concentrating, feeling tense or jumpy, anticipating the worst, irritability,



restlessness, watching/waiting for signs or occurrences of danger and feeling like one's mind is gone blank, as well as nightmares, obsessions about sensations and feeling like everything is scary. It feels a bit like fear but whereas we know what we are frightened of, we often don't know what we are anxious about. Anxiety is defined as "a painful or apprehensive uneasiness of mind usually over an impending or anticipated ill" (Merriam-Webster, 2012). Students experiencing academic anxiety feel apprehensive over academic tasks. Students can feel anxiety related to every academic task. Some may only feel anxiety related to test taking or other specific tasks. Anxiety is not always negative. Some students can be motivated by anxiety.

Review of Literature :

Frost (1969) noted conflicting evidences as regards the relationship between anxiety and educational achievement in children but the consensus seems to indicate a negative relation. It was also observed that age, social class, sex and intelligence each plays a part in determining the precise relationship between test anxiety and achievement. Boor (1972) found that none of the test anxiety measures was significantly related to examination performance. Silva (1984) found that females showed higher level of social anxiety than the males. He suggested that homogeneous grouping should be done in order to reduce social anxiety. Namrata (1992) studied the relationship of personality traits, situational stress and anxiety factors to students' achievement. The finding of the study was that students having lower level of anxiety tended to score higher in high school examinations. . Mnicholas and Lewiensohn (1998) conducted a study on the anxiety on the basis of gender differences. The data indicates that at age 6, females are already twice more likely to have experienced anxiety disorders than males. . Parents and teachers agree that there is too much

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stress on all involved concerning standardized testing (Barksdale-Ladd, & Thomas, 2000). Thomas (1999) found that social anxiety plays very important role in the overall development of the individuals. He suggested that social anxiety creates hindrance in the personality development of the individuals. Hancock (2001) investigated the effects of students' test anxiety and teacher's evaluation practices on students' achievement and motivation at post the secondary level. He found statistically significant results which revealed that all students, especially students with high anxiety level, performed poorly and were less motivated to learn Ballash and colleagues (2006) found support for a model where perceived control acts as a mediator, but not a moderator, between family functioning and anxiety symptoms in young adults. Although the sequential relation between locus of control, family functioning, and anxiety symptoms is still unclear, there is reason to believe that further investigation of perceived control within the complex family setting may shed light on one of the many mechanisms involved in development of anxiety disorders, including SAD. Allen (2009) found that death anxiety has a negative effect on the development of the individuals. The findings of the study revealed that people suffering from death anxiety has the low confidence level. Females showed significantly higher death anxiety than the males. *Neelam and Attri (2013)* have attempted to find out the academic anxiety and academic achievement of secondary school students. It was hypothesized that there exists a significant difference in academic anxiety and academic achievement of male and female secondary school students. For verification of these hypotheses, the data was collected from 200 secondary school students of Mandi district of Himachal Pradesh by adopting lottery method of random sampling by administering 'Academic Anxiety Scale for Children (AASC)' and their marks of class 9th were taken as academic achievement.

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. The statistical technique used was t- test. The findings of the present study revealed that there exist significant differences in academic anxiety and academic achievement of male and female secondary school students. Girls found to be more academically anxious and had better academic achievement than boys.

Causes of anxiety

Anxiety is often triggered by stress in our lives. Some of us are more vulnerable to anxiety than others, but even those who become anxious easily can learn to manage it well. We can also make ourselves anxious with “negative self-talk” - a habit of always telling ourselves the worst will happen. While there are some known risk factors for anxiety, the cause of anxiety is relatively unknown. Here are some of the potential factors that could cause a person to suffer from anxiety.

Stress

Stress is a major catalyst for anxiety. Anxiety can come from numerous daily stressors (work, relationships, etc.), and those who don't adequately deal with stress run a higher risk of developing chronic anxiety.

Chemical Imbalance

Some research suggests that anxiety may be linked to certain neurotransmitters, or special chemicals in the brain that move information from one cell to another. Disturbances or imbalances in these neurotransmitters can cause numerous problems, including anxiety.

Anxiety can also be caused by disturbances to the amygdala, the part of the brain that processes fear and anxiety.

Genetics & Family History

Genes and upbringing can also play a role in anxiety.



People raised in a stressful or tension-filled home have a greater chance of developing anxiety. The same is true of children raised by overbearing, overprotective, or over-demanding parents.

Anxiety often develops in children who are put under pressure to exceed in school, sports, or other activities. Also, children who grow up in abusive homes run a much higher risk of developing anxiety and panic attacks.

Trauma

Stressful events and trauma can lead to the development of generalized anxiety disorder. These include physical, mental, or sexual abuse, divorce, changing jobs or schools, or death of a loved one.

Severely traumatic episodes, such as war, can cause stronger types of anxiety, such as posttraumatic stress disorder, or PTSD.

Medications

Some medications (such as amphetamines, decongestants, diet pills, and bronchodilators) can cause anxiety as a side-effect, while withdrawal from other substances (drugs, caffeine, nicotine, and alcohol) can also cause anxiety. Medications designed to treat anxiety, can, unfortunately, also cause rebound anxiety if they are not managed properly.

Other causes of Anxiety :

Family history of mental health issues can be a contributing factor. But it doesn't mean if there are mental health issues in your family you will develop anxiety.

Ongoing stressful situations such as job issues or changes, unstable accommodation, family or relationship breakdown and grief. If you have



experienced physical, sexual, verbal abuse, life threatening events or pregnancy and childbirth you may be at risk

Physical health issues can be the underlying cause of anxiety disorders. There can be anxiety links for people who suffer from asthma, diabetes, heart disease and hormonal issues, such as thyroid problems. Sometimes anxiety symptoms are the first indication of a physical health issue

Substance abuse, particularly cannabis, amphetamines, alcohol and sedatives can trigger anxiety symptoms. Withdrawing from drugs and alcohol can also cause withdrawal-related anxiety.

Personality types such as being a perfectionist, low self-esteem or the need to be in control can make people more susceptible to anxiety.

Environmental and external factors: Environmental factors that are known to cause several types of anxiety include: a) Trauma from events such as abuse, victimization, or the death of a loved one, b) Stress in a personal relationship, marriage, friendship, and divorce, c) Stress at work, d) Stress from school, e) Stress about finances and money, f) Stress from a natural disaster, g) Lack of oxygen in high altitude areas.

Medical factors : Anxiety is associated with medical factors such as anemia, asthma, infections, and several heart conditions. Some medically-related causes of anxiety include: a) Stress from a serious medical illness, b) Side effects of medication, c) Symptoms of a medical illness, d) Lack of oxygen from emphysema, or pulmonary embolism (a blood clot in the lung)

Other emotional and physical symptoms of anxiety are:

Emotional symptoms:

- excessive worry about the past, present or future
- feeling apprehensive



- feeling powerless
- a sense of impending panic, danger or doom
- mind racing, finding it hard to think
- difficulty concentrating and remembering things.

Physical symptoms:

- increased heart rate
- breathing rapidly (hyperventilation) or shortness of breath
- sweating
- trembling
- feeling tired or weak
- dizziness
- choking
- dry mouth
- stomach or chest pain
- diarrhoea
- blushing
- muscle tension and headaches
- difficulty sleeping and nightmares

Types of Anxiety :

Five different types of anxieties i.e.

1. Academic anxiety,
2. Test anxiety,



3. Self anxiety,
4. Death anxiety,
5. Social anxiety.

Anxiety is a common place experience that everyone has from time to time. It is difficult to describe it concretely because it has so many different potential causes and degrees of intensity. The reviews of literature available in the field of anxiety reveals that there are five major types of anxieties that can influence adolescents' life. These five types of anxieties are described briefly as follows :

1. Academic Anxiety : The era of competition makes students more anxious and the eagerness of whether they can do well in their academic part or perform well in academic activities may adversely affect the mental health of students. It is the painful uneasiness of mind while doing or focusing on academic activities in school or at home. Educational or academic anxiety is a kind of anxiety which relates to the imminent danger from the environment of the educational institutions together with teacher and certain subjects like Chemistry, Physics for numerical, Mathematics, and English to some extent for some north Indian states. It is a mental sensitivity of uneasiness or distress in response to school or college circumstances that is perceived negatively. Academic anxiety afflicts students during school-related situations. If academic anxiety isn't properly addressed, it can have many serious and lasting consequences, such as causing a student to procrastinate, perform poorly on school work, fail in classes and withdraw from socializing with peers or pursuing activities that interest him. Academic anxiety is, to a certain extent, unavoidable, necessary, and even productive, since it motivates to spend time for academic tasks. However, when anxiety elevates above this productive lever, negative



outcomes such as, lack of concentration during study time, losing focus during study and attention difficulties occur. Academic anxiety can become more detrimental over time. As a student's academic performance suffers, the anxiety level related to certain academic tasks increases (Huberty, 2012).

2. Test Anxiety : It is a condition wherein someone emotionally or physically experiences distress at prior, during or after taking on exam. In other words, 'too much anxiety about a test is commonly referred to as test anxiety'. Test anxiety is uneasiness, apprehension or nervousness felt by students who are afraid of failing an exam. Sweating, dizziness, headaches, racing heartbeats, nausea, fidgeting and drumming on a desk are the common symptoms. During the test, one cannot recall material that he/she has studied and really know and his/her performance on tests consistently falls below the expectations. Test anxiety is actually a type of performance anxiety — a feeling someone might have in a situation where performance really counts or when the pressure is on to do well. For example, a person might experience performance anxiety when he or she is about to try out for the school play, sing a solo on stage, step onto the platform in a diving meet, or go into an important interview. Like other situations in which a person might feel performance anxiety, test anxiety can bring on "butterflies," a stomachache, or a tension headache. Some students might feel shaky, sweaty, or feel their heart beating quickly as they wait for the test to be given out. A student with really strong test anxiety may even feel like he or she might pass out or throw up. Test anxiety has become a more frequently studied construct in educational psychology and a primary concern in the testing and assessment field. Zeinder (1998) defines test anxiety as the set of phenomenological, physiological and behavioural responses that accompany concern about



possible negative consequences or failure on an exam or similar evaluate situations. It has been found that students consistently perceive examination as a source of increase in anxiety and a situation engulfed with uncertainty/unfairness in letting them demonstrate their true achievements (Zollar & Ben-chain, 1990; Spielberger, 1985). Such feelings among students' limit their potential performance during the test situation, resulting in higher test anxiety (Hill & Wigfield, 1984) directly causing drop in the student achievement.

3. Self-Anxiety: It is the most common, widespread form of anxiety. It affects millions of people throughout the world. It is usually defined as an on-going state of tension over something ephemeral or unrealistic. In other words, an individual remains always worried about nothing in specific, or something that makes no sense being worried about himself. The common symptoms of self-anxiety are presence of interfering thoughts, self-task or activity which causes anxiety, presence of physiological-emotional upset such as nausea, butterflies or seating. The individuals show inappropriate behaviours such as panic attacks, study avoidance etc. Such type of anxiety restricts the individual to live his normal life. Since the person suffering from self-anxiety remains preoccupied with 'what ifs' and worst-case scenarios, his/her development is effected to a large extent. The higher level of anxiety interfere with his/her day to day life – all this with no positive payoff. The person suffering from self-anxiety becomes unable to stay calm and collected and thus fails to look at life from a positive perspective.

4. Death Anxiety: It is the morbid, abnormal or persistent fear of death or dying. It is a feeling of dread, apprehension or solicitude (anxiety) when one thinks of the process of dying or ceasing to be or what happens



after death. The person suffering from such type of anxiety disorder shows symptoms like excessive fear of the dark, excessive sweating, shortness of breath, light headache or fainting, rapid heartbeat and dry mouth. In the most severe cases, he/she can feel nauseous and short of breath or might even experience a full-blown panic attack. The person suffering from such type of disorder remains preoccupied with random thoughts of death, fears of dark and even panic attacks in the alone. Thus, the person suffering from death anxiety remains in the terror of dying and shows excessive abnormal behaviours even in the most normal situations.

5. Social Anxiety : This type of anxiety may be termed as the fear of attending social situations, interaction with others and being evaluated or scrutinized by other people. In other words, social anxiety involves intense feeling of fear in social situations and especially situations that are unfamiliar or in which he/she will be watched or evaluated by others. Some of the common symptoms of social anxiety are escaping from the group situations such as marriages, peer groups, continuously thinking that everyone is watching him/her, getting afraid to talk to the strangers, becoming too much self-conscious. People suffering from social anxiety hate to work with in the groups because of lack of confidence in talking or because of lack of confidence in talking or working with others. Such individuals has intense fear of social situations and especially situations that are unfamiliar to them. Social anxiety disorder (SAD) is a debilitating and chronic illness characterized by persistent fear of one or more social or performance situations. The persons suffering from this disorder tend to remain alone most of the time. Such type of fear and anxiety leads to the feelings of inadequacy, embarrassment, humiliation and in the most severe cases, depression. The common types of social anxiety are specific and generalized social anxieties. A specific social anxiety is the fear of



speaking in front of groups only, whereas, people suffering from generalized social anxiety are anxious, nervous and uncomfortable in almost all social situations. Social anxiety disorder (SAD) is a debilitating and chronic illness characterized by “a marked and persistent fear of one or more social or performance situations involving exposure to unfamiliar people or possible scrutiny by others” (Furmark 2002, p 84; Schneier 2006, p 1030). Most teachers will have students with social anxiety and/or academic anxiety. Social anxiety can also affect a student’s academic performance. If a student has social anxiety, the student might not be able to complete group tasks or might not feel comfortable asking for help in class. Social anxiety can go along with or even lead to academic anxiety. Teaching students self-regulation can reduce anxiety and increase academic performance (Ader & Erktin, 2010).

CONCLUSION :

Anxiety is a normal human emotion that everyone experiences at times. Many people feel anxious, or nervous, when faced with a problem at work, before taking a test, or making an important decision. Anxiety disorders, however, are different. They can cause such distress that it interferes with a person’s ability to lead a normal life. Anxiety is more than just a feeling. As a product of the body’s fight-or-flight response, anxiety involves a wide range of physical symptoms. Main causes of anxiety are Stress, Chemical Imbalance, Genetics & Family History, Trauma, Some medications (such as amphetamines, decongestants, diet pills, and bronchodilators). Other causes includes; Family history of mental health issues; Ongoing stressful ; Physical health issues ; Substance abuse, Personality types . Environmental factors that are known to cause several types of anxiety include: a) Trauma from events such as abuse, victimization, or the death of a loved one, b) Stress in a personal relationship, marriage, friendship,



and divorce, c) Stress at work, d) Stress from school, e) Stress about finances and money, f) Stress from a natural disaster, g) Lack of oxygen in high altitude areas. Anxiety is associated with medical factors such as anemia, asthma, infections, and several heart conditions. Some medically-related causes of anxiety include: a) Stress from a serious medical illness, b) Side effects of medication, c) Symptoms of a medical illness, d) Lack of oxygen from emphysema, or pulmonary embolism (a blood clot in the lung) . There are several recognized types of anxiety, including i.e. Academic anxiety, Test anxiety, Self anxiety, Death anxiety, and Social anxiety. Social and academic anxiety can have a negative effect on a student's academic performance. Teachers and parents can learn to recognize the signs of anxiety in students. If teachers and parents help students learn to control anxiety early on, more serious academic problems related to anxiety can be avoided.

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PARTIAL INFORMATION SECURITY IN DISTRIBUTED BROKERING SYSTEM

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I. INTRODUCTION

Sharing of information is essential in recent years which are growing not only among organizations with frequent or corresponding interests, but also within enormous organizations which are becoming more globalized and extend transversely in the network. Along with the abrupt increase of information which is collected by organizations in many realms ranging from business to organization activity, there is an growing need for interorganizational information sharing to facilitate large collaboration. While being considered a solution between “sharing nothing” and “sharing everything”, peer-to-peer information sharing frame essentially need to create pair wise client-server relationships between each pair of peers, which is not scalable in large scale mutual sharing. Security for organization activity need to distribute information for devising valuable security measures, both within the same organization and across the organization. The activities which are present in the organization cannot arbitrarily open up its database to all other organization activities. Network security provides authentication and confidentiality for sharing information in a network [1]. Information security within an organization has undergone two major changes in the several decades. The use of data processing tools, the security of information felt to be



valuable in an organization which is provided primarily by physical and administrative means [3]. A company or other organization that engages in the business of trading has several brokers through which the customers or clients can approach the company for shares. In the context of sensitive data and autonomous data provider, a more realistic and flexible solution is to construct a data-centric overlay consisting of data sources and a set of brokers that make routing decisions based on the content of the data. There are situation the brokers who act as an intermediate between the organization and the customers can change the data in order to gain money for their sake. There are two novel schemes to prevent curious or corrupted coordinators from inferring private information, one is to segment the data brokering automata and the other is to encrypt corresponding data segments so that routing decision making is decoupled into multiple correlated tasks for a set of collaborative coordinators.while providing integrated in-network access control and content-based query routing [2]. The Preceding Limitation can be overcome by the novel based approach with the effective algorithms in order to overcome the problem of communication delimitation between company and customers. Traditionally digital signature concept is used for providing security in network communication. Digital signature widely use hash functions such as MD5 and SHA family. Digital signature is used for signing the data which is sent by user to client, to avoid no hacking process by third parties between user and the client. When the data is sent by the user the data is encrypted and the data is sent partially to broker using the partial disclosure technique. Partial disclosure involves an investigator withholding or



omitting information about the specific purpose or objectives of the research study or other aspects of the research. Partial disclosure is also known as “passive deception” or “incomplete disclosure” or “omission”. Partial disclosure may also be considered deceptive [4].

Information security includes some of the following functions [3]:

A. Authentication:

Each party should authenticate its corresponding item.

B. Integrity:

Each party should make sure that the acknowledged messages are not altered or fabricated by other than its corresponding item.

C. Confidentiality:

Each party wants to keep the content of its communication secret.

D. Message authentication:

Each party wants to make sure that the received messages do really come from its counterpart.

E. Non-repudiation:

Each party desires to avoid that the counterpart later denies the agreements that it has approved earlier.

F. Availability:

The systems work promptly and service is not denied to authorize users.

II. RELATED WORK

A. Survey of the paper

1) Privacy Preserving Incremental Data Dissemination



In this paper the k-anonymity model and l-diversity model is recently drained for significant attention in the research community. The k-anonymity model mainly focuses on the difficulty of record identification. The l-diversity model built upon the k-anonymity model which addresses the threat of attribute disclosure. These models have yielded a number of precious privacy-protecting techniques. This paper represents “one-time” data dissemination where it does not effectively address today’s strong demand for immediate and up-to-date information. It introduces the anonymization techniques for preserving privacy of data dissemination. These include various generalization strategies such as hierarchy-based generalization, single-level generalization, multi-level generalization and hierarchy-free generalization [4] [6]. This project emphasizes a strongest concept of finding anonymous data dissemination. Possible attacks which are present in finding anonymous data dissemination are Record tracing attack, Intersection attack and Difference attack. Disadvantage of this paper are investigation on the inference issues in more dynamic environments where deletions and updates of records are allowed is not discussed in this paper. It does not consider all the inference issues only some of the specific items were considered in this paper [5].

2) Attribute-based encryption

This paper focused on Attribute based encryption determines decryption ability based on a user attributes. In a ABE scheme, multiple attribute-authorities monitor dissimilar sets of attributes and issue corresponding decryption keys to user, and encryptors can require that a user obtain keys for appropriate attributes from each authority before decrypting a message. Chase technique gave a multi-



authority ABE scheme using the concepts of a trusted central authority (CA) and global identifiers (GID). However, the CA in that construction has the power to decrypt every cipher text, which seems somehow contradictory to the original goal of distributing control over many potentially untrusted authorities [6][10]. A solution has been proposed that removes the trusted inner authority, and protects the users' isolation by preventing the authorities from pooling their information on particular users, thus making ABE more usable in practice [6]. Disadvantage of this paper consists of the system was more complex and the confidentiality depends critically on the security of the central authority. The methods and techniques used in this project are not efficient and do not contain all the security for the database.

3) XML Information Brokering

Fengjun Li, Bo Luo, Peng Liu, Dongwon Lee, and Chao-Hsien Chu proposed to distributed information brokering system satisfies the data with privacy protection using the novel privacy preserving information brokering (PIIB). The automaton segmentation method, distributed access direct enforcement, and query segment encryption, integrates security enforcement and query forwarding while preserving system-wide privacy. PIIB takes an automation segmentation to provide privacy protection [15]. Automation segmentation is to split susceptible information to largely worthless shares held by multiple parties who collaborate to share the privacy-preserving accountability. PIIB uses automation segmentation to segment the data which was sent by user to server through broker [6] [7]. Disadvantage of this paper consists of the IBS suffers from a



spectrum of vulnerabilities associated with customer privacy, information privacy and metadata privacy.

4) Information Brokering in Distributed Information Sharing

Till now the system provides many information management applications and other sensitive information which we share with the broker parties and coordinators cannot be stored as a record of secured information. It's the security which is unconditional and does not depend on complicated computational assumptions when the invalid encryption takes place for the brokering control for data overlay. Moreover, the information management system must be robust such that it can still work when some distributed servers are corrupted and hided over the complex analysis. In this paper, we fail to focus on the most sophisticated and wider range of applications for opting security providence by not allowing the broker agencies and coordinator parties to look into the unique authenticated information. The automation segmentation method, in-network access control, and data segment encryption, PPIB integrates security enforcement and query forwarding while providing comprehensive privacy protection Main problem of this paper, User authentication is not focused [7].

5) Query Auditing Against Partial Disclosure

Many government agencies, businesses, and nonprofit organizations need to collect, analyze, and report data about individuals in order to support their short-term and long-term planning activities. Statistical Databases therefore contain confidential information such as earnings, praise ratings and test



scores of individuals. Such data are usually stored online and analyzed using sophisticated database management systems (DBMS) and software packages. On one hand, such database systems are expected to satisfy user requests of aggregate statistics related to non-confidential and confidential attributes. On the other hand, the system should be secure enough to guard against a user's ability to infer any confidential information related to a specific individual represented in the database. A major privacy threat is the adversarial inference of individual (private) tuples from aggregate query answers. Most existing work focuses on the exact disclosure problem, which is inadequate in practice. We propose a novel auditing algorithm for defending against partial disclosure [9]. Disadvantage of this paper represent that there is no auditing against disclosure in stastical database.

III. PRELIMINARIES

This section reviews the definitions of Distributed Brokering System, Digital Signature and Partial disclosure technique.

A. Distributed Brokering System

A broker needs to be aware of the broker network layout to optimize routing to destinations. However, given the potential size of the broker network, it is impractical for every broker to be aware of the complete broker network inter-connection scheme. The data's are stored in the broker while user is already off and the organization has not yet started. Also, if the request fails, the data that were already passed to the broker are not lost. To achieve this kind of behavior you simply have to have some application (broker) in the central point. Consequently, you cannot avoid 2 network hops to get message from

user to the organization it would be fine to keep away from the "broker as a bottleneck" problem.

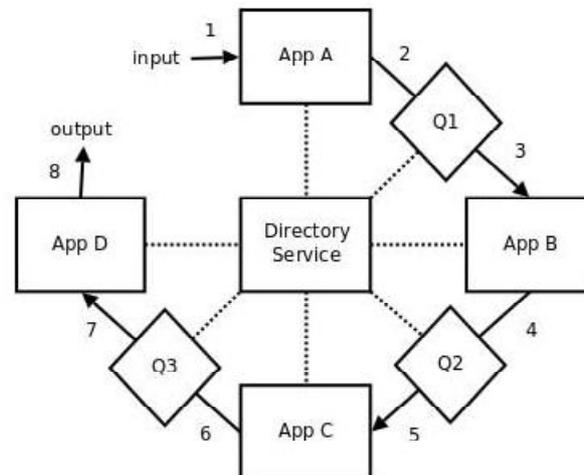


Fig 1: Distributed broker architecture [12]

As shown on the figure 1, each message queue is implemented as a different application. It might run on the similar envelope as one of the applications it is involving, it may be placed on an entirely different box. A number of queues may run on a particular envelope, the envelope may be committed completely to host a single queue. Queue is registered with the broker (directory service) and thus it is accessible to all the applications on the network [13]. Additionally, the queue is very straightforward portion of software that's getting data from user and distributing them to the organizations. So the possibility of disappointment is much lower than with real applications full of complex business logic.

B.Digital Signature

Digital signatures are created and verified using Public Key Cryptography that is based on the concept of a key pair generated by a mathematical algorithm.

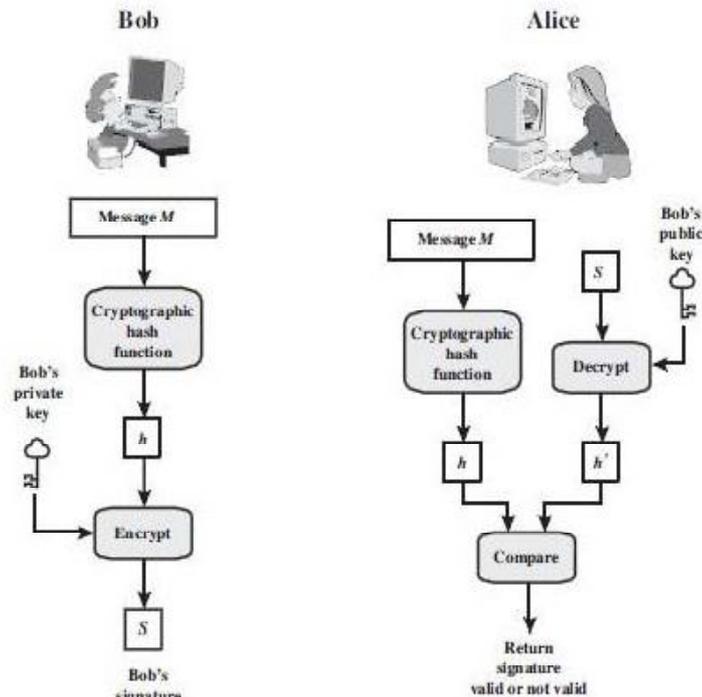


Fig 2: Signing and Verification method [10]

A digital signature is an encrypted version of a message digest, attached together with a message. Figure 2 shows the digital signature signing and verification process

There is no complete trust between the sender and the receiver where authentication is needed. The most striking solution to this problem is the digital signature. The digital signature must have the following properties:

- It must verify the author of the message and at which time and date of the signature.
- It must validate the contents at the time of the signature.
- It must be certifiable by third parties, to determine the disputes.

Thus, the digital signature process includes the authentication and confidentiality function from the given data or message.



C. Partial Disclosure Measure

We consider that each private data point x_i belongs to a given probability distribution. As new queries are received, the probability distribution of the data points change because each query reveals some information of the data points it refers. Intuitively, partial disclosure occurs when an adversary's posterior belief of the probability distribution of a private data point x_i (given the query history) differs from its prior belief (without knowledge of the query history). But this happens for each query answered. Thus, we measure privacy disclosure by the discrepancy between an adversary's prior and posterior belief of the distribution. For any given time, let a user's query history QH be the query answers the user has received. We have the following definition of partial disclosure measure [9]:

For an adversary with query history QH , the level of privacy disclosure is defined as:

$$I_p(Q_H) = \max_i \frac{I(x_i; Q_H)}{H(x_i)}$$

where $H(x_i)$ is the information entropy of x_i , and $I(x_i; Q_H)$ is the mutual information between x and the query history Q .

IV. ENCRYPTION SCHEMES

A. DES encryption

The Data Encryption Standard (DES) is a block cipher that uses secret encryption. Data Encryption Standard is a widely used method of data encryption using a private (secret) key. Symmetric key encryption is also known as single key, secret key, and shared key, private encryption. In this type of data encryption, both sender and receiver distribute the identical key which is used to both encryption



and decryption messages. Sender and receiver just have to indicate the shared key in the beginning and then they can begin to encrypt and decrypt messages between them using that key. In symmetric key there is no secure channel for secret key exchange. Origin and authenticity of message cannot be guaranteed. In asymmetric key encryption, the method of encrypting messages makes use of two keys: a public key and a private key. The public key encryption allows the use of digital signatures which enables the recipient of a message to verify that the message is truly from a particular sender. An advantage of public key encryption is detection of tampering where the use of digital signatures in public key encryption allows the receiver to detect if the message was changed in transit. A digitally signed message cannot be customized without invalidating the signature [2].

B.XOR Encryption

The scheme for XOR encryption is unfeasible to invalidate the operation without knowing the initial value of one of the two arguments. For example, if XOR has two variables of unknown values, it cannot tell from the output what the values of those variables are. XOR encryption works on the principle that if you have the encrypted string and the encryption key you can always decrypt suitably. If it does not have the key, it is unworkable to decrypt it without making entirely random keys and attempting each one of them until the decryption program's output is something akin to understandable text. [12].



V.PROPOSED SYSTEM

In the existing work [7] they focus on information data of distributed broking system which are sent to the web server where it uses only encryption way but there is no user authentication of data and there is a possibility of hacking data by third parties between users to client or organization due to some leakages of data. Only encryption and decryption is done in the existing system while sending the data which is not more secure and confidential, these are the main problem of existing system, so they leads to the proposed model. In the proposed system, the user allows more complex data to be shared in a secured manner and it also has applications in privacy preserving data. The problem of sharing privately is overwhelmed by our algorithmic approach by providing digital signature of the data, which cannot be identified by other parties extensively. The exertion reported in this paper further explores the modification of other parties between sharing secrets in an anonymous manner, will automatically make the original information to be an invalid one. After the encryption process xml syntax is included in the data and it is partially viewable by the third parties by partial disclosure technique. By using our encryption standard our distributed secure computation system shows that our approach seamlessly integrates security enforcement at the user intensity with a certain trust level and accessing privilege providence of unified data access. The data which was sent by user to the organization is get verified by using the xml verification process.

A.Architecture of the Proposed Work

User send the actual data to the broker which is the intermediate person between the user and the organization, the data is signed with the digital signature. The data is encrypted with xml syntax in broker with the xor encryption algorithm. RSA-SHA1 hashing function is used to sign the message in the signature suite and to verify the data which is entered. The data which is encrypted in the broker is sent to coordinator and it is partially viewable by the third parties by using the partial disclosure technique. Coordinator works is to sent the encrypted data to the web service and get benefits from the user. The partial viewable data is transfered to the web service from the client through intermediate person is kept in a common place.

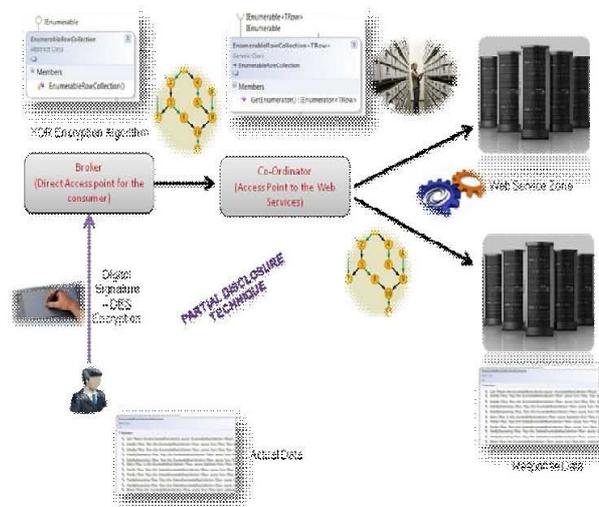


Fig 3: Architecture of proposed work

Decryption technique takes place to get the actual data from the web service to organization. When the decryption process takes place the data is validated by the xml verification process whether the given

data and the received data are same. Response from the organization is sent to client.

B.PROCESS OF DIGITAL SIGNATURE

User authentication work is not focused on existing work, so third party easily accesses the data. Based on the literature survey, proposed work provide a more security of data by using digital signature concept. Digital signature is an in one direction hash of the original data that has been encrypted with the signer's private key. Process of digital signature, all role players such as client, intermediates and the organization should authenticate the data using the procedure of digital signature.

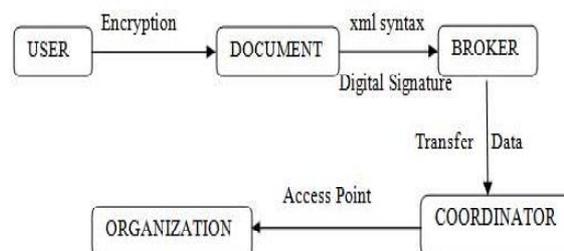


Fig 4: Digital Signature process

Digital signature process shown in figure 4. This digital signature format is the advanced techniques and safe way to transfer the data that is encrypted. By using this data some large quantity of data or detail got encrypted with the use of algorithm. For the verification, the receiving software first uses the signer's public key to decrypt the hash, and then it uses the same hashing algorithm that generated the original hash to generate a new one-way hash of the same data. The software which is received compares the new hash key against the original hash key. If the two hash keys get matched then the data has not changed since the data was signed. The main constraint in the



executive of digital documentation is its uniformity, from a legal perspective, affix a signature on a digital document is the fundamental principle on which is based on the main processes of authorization and validation.

C.XML VERIFICATION PROCESS

XML Signature defines XML syntax for digital signatures. It uses reference validation and signature validation to validate the digital signature. In this process, the digitally signed documents by the client, intermediates and the organisations are validated in order to check its genuineness. XML security provides easy-to-use functionality for assigning digital XML signatures to XML documents via XML Signature technology. XML digital signature technology allows you to confirm the authenticity and integrity of XML files, to identify the signing party. The protection of XML Signature provides for XML data is important for transmission of files for everyday business transactions and other official filing documents that are submitted digitally and will likely require the use of digital signatures in the future [14]. XML syntax supports the creation and verification of XML digital signatures. XML file is getting signed using the private key of a digital certificate or a password. The signature can be consequently verified using either the public key that corresponds to the selected certificate or the password specified during the signing process. Checking of the digital signature is main phase in this paper.

D.PARTIAL DISCLOSURE PROCESS

Partial disclosure co-ordination zone is mainly to safeguard the confidentiality between client and organisation thereby preserving the data from the intermediates illegal activities. In this module, the data



are partially viewable according to the individual role players who acts as intermediate, this maintain confidentiality and direct dealing between client and organisation.

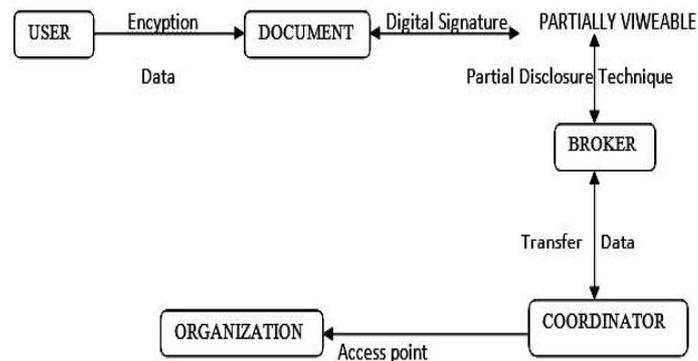


Fig 5: Partial Disclosure Process

Even intermediates is not having permission to view the data fully only the organization can decrypt the data and extract information sent by the client.

ALGORITHM:

A. Digital signature algorithm:

1) Signing process

For the signing process let us consider a user A which generates a private/public key pair as follows.

- 1) Create a random integer X_A , such that, $1 < X_A < q-1$.
- 2) Compute $Y_A = \alpha^{X_A} \text{ mod } q$.
- 3) A's private key is X_A ; A's pubic key is $\{q, \alpha, Y_A\}$

To sign a message M, user A first computes the hash $m = H(m)$, such that m is an integer in the range $0 \leq m \leq q-1$. A then forms a digital signature as follows.



- 1) Choose a random integer K such that $1 \leq K \leq q-1$ and $\gcd(K, q-1) = 1$. That is, K is relatively prime to $q-1$.
- 2) Compute $S_1 = \alpha^K \bmod q$. Note that this is the same as the computation of C_1 for encryption.
- 3) Compute $K^{-1} \bmod (q-1)$. That is, compute the inverse of K modulo $q-1$.
- 4) Compute $S_2 = K^{-1}(m - X_A S_1) \bmod (q-1)$.
- 5) The signature consists of the pair (S_1, S_2) [7].

2) *Verification process:*

Any user B can verify the signature as follows.

1. Compute $V_1 = \alpha^K \bmod q$.
2. Compute $V_2 = (Y_A)^{S_1} (S_1)^{S_2 \bmod q}$ [7].

The signature is valid if $V_1 = V_2$.

B. Partial Disclosure Algorithm

Avoiding disclosure of sensitive info, which includes suppressing all sensitive entries in a table along with a specific number of other entries in the table, which in turn referred as complementary suppression. The idea is to allow each table entry x_i to be replaced by a convenient interval

$$[x_i - z - i, x_i + z + i].$$

The extreme values of each interval have then to be determined so as to ensure the required protection for the sensitive entries, while minimizing the overall loss of information incurred.

VI. CONCLUSION AND FUTURE WORK:

The information brokering system that exists suffers from a spectrum of vulnerabilities associated with user privacy, data privacy, and metadata privacy. By compiling the access control policies into the



data encryption, accessible client based access control solutions diminish the trust required on the client at the price of a certain extent static way of sharing data. It proposes PPIB, a new approach to preserve privacy in XML information brokering. The data which is sent by user to broker is partially viewed by the third parties. The quotation quoted by the user is sent through the brokers and coordinators to central web service zone where it is manipulated by the organizers. Intermediately to avoid the intrusion, the quotation is secured using the concept of digital signature. Next research includes design an automatic scheme that does dynamic site allotment. Several factors can be considered in the scheme such as the workload at each peer, trust level of each peer, and privacy conflicts between automaton segments. More generally, client-based security solutions deserve a special attention for the new research perspectives they broaden and for their foreseeable impact on a growing scale of applications. And at the last it planned to minimize or eliminate the participation of the administrator node, who decides such issues as automaton segmentation granularity.

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HEALTH INSURANCE MARKET SCENARIO IN INDIA- AN OVERVIEW

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1. INTRODUCTION

The term health insurance (popularly known as Medical Insurance or Mediclaim) is a type of insurance that covers your medical expenses. The concept of health insurance is new in India but its awareness is growing fast. Health insurance comes in handy in case of severe emergencies. Life is unpredictable, insurance can make it safe and secure from bearing huge financial loss. A health insurance policy is a contract between an insurance company and an individual. Sometimes it is associated with covering disability and custodial needs. The contract is renewable annually.

Health insurance is affordable and carries the assurance and freedom from insecurities that threaten normalcy now and then. The type and amount of health care costs that will be covered by the health plan are specified in advance. Health plans are available in two formats, individual and group plans. In an individual policy you are personally the owner of the policy. While in a group plan, the sponsor owns the policy and the people covered under it are called its members.¹

Health insurance unique from all other forms of insurance as it involves party other than the insurer and the insured, without which health insurance loses its meaning- the healthcare provider. The healthcare provider pays a major role in determining what services are used, how



much of the services are used and how much they cost – which makes it different and also complex. Economists describe health insurance as an ‘imperfect market’ where normal market forces do not work as expected. The imperfections include the following concepts which are important to understand:

1.1. Information Asymmetry

The information available to the insurer and the insured about each other is not perfectly transport or complete. Insured often does not fully understand the insurer’s capabilities, or the exact interpretation of his contract. Similarly, the insurer may not fully know the exact risk status of a proposer and so may not price the risk correctly.

1.2. Risk selection

The insurer’s natural preference is for lower risk proposer and there is reluctance to insure those with high risk. This is also called termed as ‘cherry-picking’ or crem-skimming’

This inverse is also true, which is called ‘adverse selection’, whereby the higher risk persons would want to purchase health insurance more than health person with low risk. Insurers apply acceptance and pricing rules to decide which risks they will accept and what price, a process called underwriting and described in a later section in more detail.

1.3. Moral hazard

- Moral hazard works at the insured’s end, as well as the healthcare providers’ end, and referred to as ‘demand side’ and ‘supply side’ moral hazard respectively.
- Demand side moral hazard: consumers seek or accept more health care services than they would if they did not have health insurance.



2. Why health insurance?

Health insurance provides you with an affordable way for you and the ones you love to stay healthy and get medical care when ill. It also protects you and your family from the high cost of health care. In some cases, medical bills can be financially shocking.

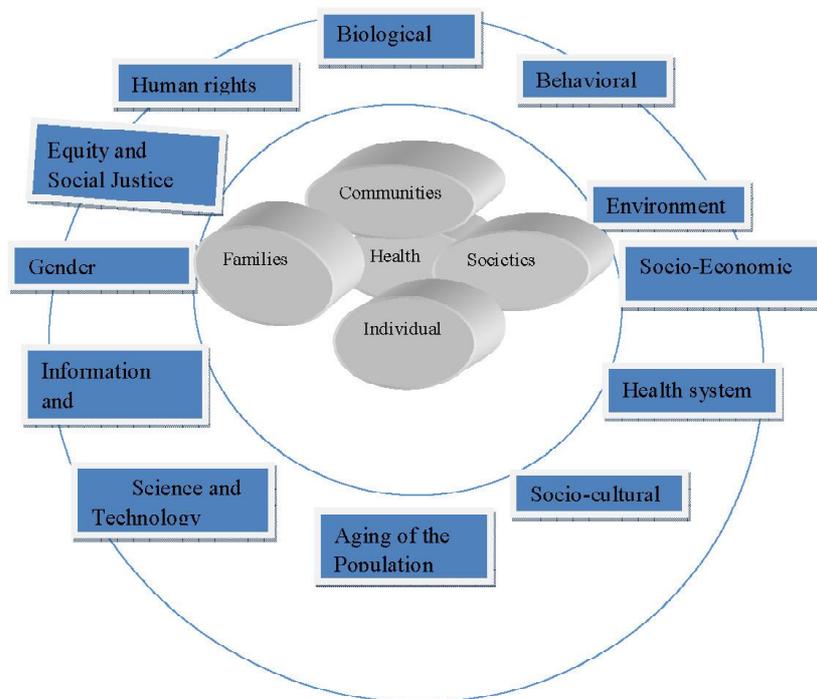
In a country where out-of-pocket expenditure by households is very high in comparison to other countries, and accounts for about 71% of all health expenditure in the country², the importance of individuals taking lead in planning for their own health expenditure, especially when it comes at a cost affordable to them, needs cannot be over-emphasized.

The increasing awareness of this protective role of health insurance, and with renewed focus on marketing of health insurance products on the part of insurers in the detariffed regime, the health insurance portfolio is now the fastest growing market segment for the non-life insurance industry. There is, however, tremendous potential, as even today, only about 5% of the country's population has been covered by a commercial health insurance product (excluding mass government schemes)

3. Healthcare Financing

Though the healthcare industry accounts for over 6-7 of our GDP and is the largest in terms of offering employment, there is serious dearth of expertise in the sector. Over 70% of the expenditure on healthcare is still being met by consumers 'out of packet'. Less than 15% of the India's population today has some form of health insurance cover. Community health insurance schemes are slowly penetrating into the rural markets with more than 25 schemes covering over 10 million lives all over India.

Determinants of Health
Figure - 1



4. Types of Health Insurance in India

There are mainly three types of health insurance

4.1. Individual Mediclaim

The simplest form of health insurance is the Individual Mediclaim policy. It covers the hospitalization expenses for an individual for up to the sum assured limit. The insurance premium is dependent on the sum assured value. Example: If you have 3 family members you can get an individual cover of Rs 2 lacs each. In this case each of you are covered for 2 lacs, if 3 members face a need for hospitalization, all 3 of them can get expenses recovered up to Rs 2 lacs All the 3 policies are independent.



1.2. Family Floater policy

Family Floater Policies are enhanced version of the mediclaim policy. The sum assured value floats among the family members. I.e. each opted family member comes under the policy, and it covers expenses for the entire family up to the sum assured limit. The premium for family floater plans are typically less than that for separate insurance cover for each family member.

1.3. Unit Linked Health Plans:

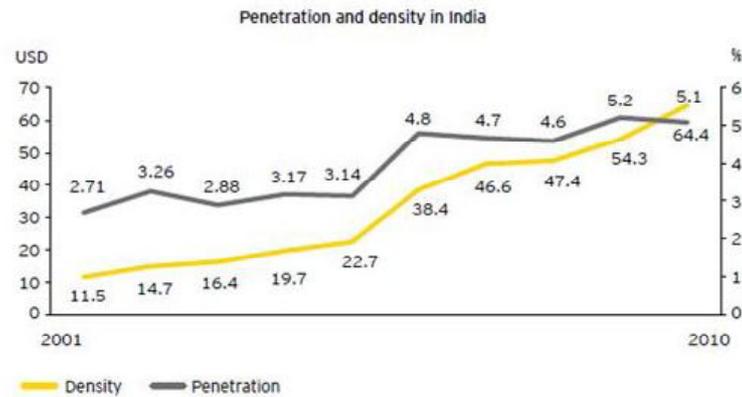
Taking the ULIP route, health insurance companies too have introduced Unit Linked Health Plans. Such plans combine health insurance with investment and pay back an amount at the end of the insurance term. The returns of course are dependent on market performance. These plans are very new and still in development phase. This is only recommended for people who can handle market linked products like ULIP and ULPP

5. Evaluation and Growth of Health Insurance in India

The Indian insurance industry seems to be in a state of flux. After a decade of strong growth, the Indian insurance industry is currently facing severe headwinds owing to:

- Slowing growth
- Rising costs
- Deteriorating distribution structure
- Stalled reforms

5.1 Indian economy and the insurance industry landscape



Source: *IRDA Annual Report 2010-11*

Despite strong improvement in penetration and density in the last 10 years, India largely remains an under-penetrated market. The market today is primarily dependent on push, tax incentives and mandatory buying for sales. There is very little customer pull, which will come from growing financial awareness and increasing savings and disposable income.

In the long run the insurance industry is still poised for a strong growth as the domestic economy is expected to grow steadily. This will lead to rise in per capita and disposable income, while savings are expected to be stable.

5.2 Insurance growth drivers in India

The demand for insurance products is likely to increase due to the exponential growth of household savings, purchasing power, the middle class and the country's working population. Listed below, are the various underlying growth drivers for India's insurance industry:

- Growing of the financial industry as a whole
- Growth of life and non-life industry



- Promoting innovation and removing inefficiency
- Competition and orderly growth
- Growth of specific insurance segments such as motor insurance

5.3 Emerging trends

- Multi-distribution i.e. increasing penetration through new modes of distribution such as the internet, direct and telemarketing and NGOs
- Product innovation i.e. increased levels of customization through product innovation
- Claims management i.e. timely and efficient management of claims to prevent delays which can increase the claims cost
- Profitable growth i.e. expanding product range, developing innovative products and expanding distribution channels
- Regulatory trends i.e. mandated regulatory changes by the IRDA to promote a competitive environment in both the life and non-life insurance sectors

5.4 Life insurance: key challenges

- In FY12, the life insurance industry witnessed a decline in the first year premium collected which dropped from INR1, 258 billion in FY11 to INR1, 142 billion, a drop of approximately 10%. This was owing to the following challenges that the industry faced in Products strategy and design
 - Cost
 - Taxation



- Distribution
- Prospects and challenges of various channels
- Compensation
- Customer service
- Governance and regulatory issues

5.5 Non-life insurance: factors impacting growth

The non-life insurance industry has been growing in excess of 20% over the last two years however the penetration was as low as 0.7% of the GDP in FY10. The key factors for growth include:

- Product pricing, innovation and simplicity
- Distribution
- Compensation
- Micro-insurance in non-life widening reach
- Governance and regulatory changes
- Health insurance
- Innovative products to counter the competition
- Improved fraud control mechanisms
- Standardization to reduce claims loss
- Reducing inefficiencies by revisiting third party administrator (TPA) agreements

5.6 Growth of Health Insurance in India:

In 80s most of the hospitals in Indian government owned and treatment was free of cost. The private medical care the need for health



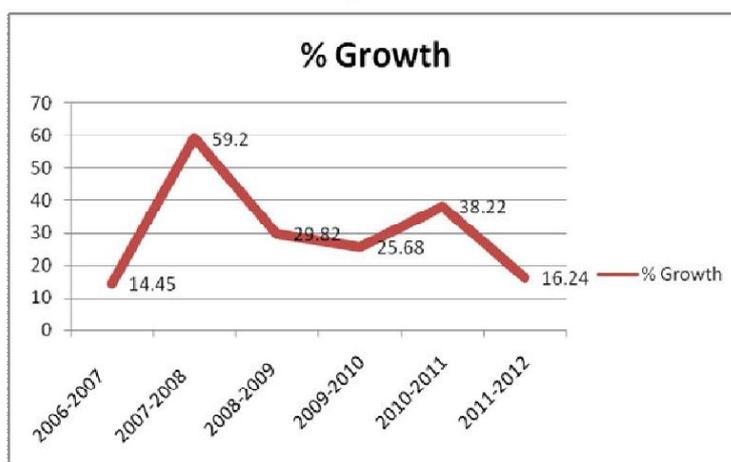
insurance was felt and various insurance companies introduced mediclaim insurance as a product. According to recent news report health insurance continues fastest growing segment with annual growth rate of 25%.health insurance premium has also increase to Rs. 13345 crores in 2011-2012.

Table: 1

Year	Amount (Rs Crores)	% Growth
2006-2007	3210	14.45
2007-2008	5110	59.20
2008-2009	6634	29.82
2009-2010	8305	25.68
2010-2011	11480	38.22
2011-2012	13345	16.24

Source: www.healthinsuranceindia.org

Figure: 3



Source: www.healthinsuranceindia.org



6. The Way Forward:

Advanced technologies like networking of operating offices of insurance companies enabled the insurance companies to offer policy services in a time bound manner. With population growing at 1.5% p.a. It is expected that real per capita income quadruples by 2020. There are changes in the socio economic life style of Indian population. With fragmentation of joint family system more number of people is leading independent family units. The income levels of young generation are also expected to increase significantly. With the development of infrastructure projects there is a migration of labour forces from rural to urban lands finding better employment avenues thereby enhancing the purchasing capacity. 93% of Indian populations are working in unorganised sector with an absolute number of 369 million While Indian demography statistics indicate a growth of 45% of working age population, there is a potentiality of generating 150 – 200 million jobs by 2020*. Keeping in view these dynamics it is expected that non - life insurance industry designs market segment-specific insurance solutions to enhance the acceptance levels of insurance products. With better prospects offered in technology sector, the ability of the insurance industry to retain the customer base lays in rendering the timely and effective policy service.

- Insurers to – collect correct data, develop new products price properly, improve u/w and claims management
- Explore possibilities of setting up pure health insurance company with JV partners
- Insurers TPAs Data Warehouse to have common IT framework to facilitate easy data transfer



- Govt. to evolve National health scheme for common man in urban and rural area and Sr.citizen and terminally ill
- Support health Insurance scheme for population below poverty line.
- Foster Public – private partnership
- Providers to be more disciplined, bring standardization, accreditation etc
- Govt. to regulate the healthcare providers
- IRDA to set up data warehouse
- Implement other recommendations of the sub - group including

Conclusion:

The government to provide universal access to free / low cost health care insurance can be an important means of mobilizing resources, providing risk protection and perhaps, improved health outcomes. This scenario , the challenge , then for Indian policy makers to find way to improve upon the existing situation in the health sector and to make equitable, affordable and quality health care accessible to the people, especially the poor and the vulnerable sections of the society. In the way inevitable that the state reforms its public health delivery system and explores other social security option like health insurance

(Footnotes)

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THE DIGITAL DIVIDE: A GLOBAL PREDICAMENT

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Introduction

Do we live in an Information Age? Yes, we currently live in the age of information. The information age has opened up untold possibilities of human progress. Information and Communication Technologies (ICTs) revolutionized the every aspect of human life and society. Computers and the Internet are the central part of our lives. It is also marked as second industrial revolution. The technology of communications is changing in ways which will have impact on the entire fabric society in both economically well developed and developing nations. In the developing nations, ICTs have brought many challenges along with opportunities, when compared with the developed ones and they are also facing the hurdle of digital divide (DD). Witnessing the changes brought in by the ICTs in the day to-day performances, as a consequence, the modus operandi of the already existing stratifications of various society of various nation states becomes more questionable, whether it fell allay or getting more rigid. The distinct question that arises out of the consequence is, the access to the available technology - is it for all, especially to the downtrodden. Globally millions of people are unable to fully experience the fruits of science and technology. Computers and the Internet technologies are unevenly accessed by each and every individual, even though it seems accessible to everyone. This inaccessible scenario creates social division, due to either poor/lack of access and this phenomenon is termed as the 'digital divide'. With these above mentioned focuses the digital divides that exist in this



social order emerge as a major and serious issue of concern for the developing nations like India as posed by the developed nations. Just like many other countries India is also affected by the DD. The aim and focus of the paper is to bring an understanding by providing some basic ideas, different notions and the ongoing debates regarding the DD.

The concept of digital divide

Since the mid 1990s, the notion of the DD has gained much more attention in an international level. Being popular in the last decade, the paradigm of DD brought the issue on the agenda of social, economic, political and scholarly discussions. From the historical background, DD was all about technology-haves and technology have-nots. The concept of DD raises some of the important and interesting questions: Why does the DD matters? Where does it commonly exist? Who is digitally included and excluded? What are the reasons for DD? What are the effects of DD on society? What are the determinant factors of DD? In the present situation, academic researchers, politicians, activists, policymakers, etc agreed that the DD is a major social problem and it has serious affects on lot of people across the world. The issue of DD is a top priority in the world. It is a core issue of the information society, not only exists between nations as we think but within the nation states too and there comes many forms and kinds. In other words, it exists both in developed countries and countries with poor economy and development. In most of the literature, the DD is usually described as a dichotomy between those who have access to ICT and those who do not. Traditionally speaking, the DD refers to the unequal access to technology. It arises due to factors such as geographical variation/ differences, socio, economic status, age and gender. There are number of researches carried out to understand the people who are most affected by the DD. People with farming/ rural background, people with low levels of



formal education, the unemployed, the elderly people, economically deprived or people in disadvantaged communities, person with disabilities. In addition to, throughout the world homeless populations are also including in this case. Unfortunately, the above mentioned people are being left behind in the information age. However, it is really true that deprived people become excluded, because they are disconnected from technology based networks. With this in mind, let us get into the definitions to be more precise.

Defining the digital divide

There are number of studies and works carried out by researchers pertaining to the DD. A brow of scholars and experts have had explained the DD in different ways. One common definition accepted by widely, it is the gap that exists between those who get benefits from technologies (Television, computers to the Internet) and related services. In a narrow sense, DD is described as, "significant demographic gaps in computer and Internet access and usage" (Hacker & Mason, 2003:99). Castells puts it, "inequality of access to the Internet" Further he argues: "access alone does not solve the problem, but it is a prerequisite for overcoming inequality in a society whose dominant functions and social groups are increasingly organized around the Internet" (Castells, 2001:248). The Internet is considered as the network of networks. There is a division between those who do have an Internet access and those do not have an Internet access, this divide is also popularly referred to as the Internet divide. A good and standard definition has been offered by the Organization for Economic Co-operation and Development (OECD): "the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a



wide variety of activities. (OECD, 2001:5). Floridi defines that is the “source of many of the ethical problems emerging from the evolution of the information society” (Floridi, 2001:1). Norris understands the divide as a broad, tripartite social structure: The global divide refers to the divide between developed and developing societies regard Internet access. The social divide reveals us the gap between access to information rich and poor in each country. And finally the democratic divide concerns the differences between those who do use and do not use digital resources to engage, mobilize, and participate in public life (Norris, 2001:4). The point referred is here, if the DD exists in highly industrialized and wealthy nations themselves face the unduly effect then, what would be the fate of developing countries and what about economically poor countries? Not everyone is so fortunate, particularly in the third world nations, the gap gets even wider and the obstacles are much more difficult to overcome. And infrastructure and financial resources are lacking in third world nations. The above definitions, deals and provides an operational framework for it. However, the phrase ‘DD’ has got much more attention in academic research from various disciplines such as communications, education, library science, sociology, political science, geography, and so forth.

Factors behind digital divide

Basically, there are number of different factors contribute to this disparity. Several researchers focused on the DD are worried that those advantaged by ICTs have greater access and skills to find information, causing a growing gap between those who are connected and who are not. They have written about the effect of the DD on knowledge. One of the important reasons of DD is knowledge divide. Generally, knowledge empowers people and can be acquired from books, teachers, and institutions and also from things around us including nature. Presently, one can get



lots of information via the Internet. Information and knowledge have become most valuable assets. These both can translate into social as well as political power. ICT is considered to be the potential tool in the field of knowledge. In particular, the Internet is considered to be the treasure of knowledge. All sorts of knowledge (for example, social knowledge, cultural knowledge, political knowledge, scientific knowledge, etc.) are made available through the Internet. More educated people with computer knowledge and language proficiency are able to access new technologies. It would seem that the DD directly relates to knowledge divide. Fallis rightly observes that "the principle value of access to information technology that it leads to *knowledge*" (Fallis, 2007:29). In the debates of DD, it is often projected as the issue of access to information. But one has to see that information is not an end in itself and as a means to knowledge and wisdom. It is well-known that knowledge plays crucial role for any development of any country. According to an American economist John Kenneth Galbraith, "but information society, the fuel, the power, is knowledge. Galbraith emphasizes: "one has now come to see a new class structure divided by those who have information and those who must function out of ignorance. This new class has its power not from money, not from land, but from knowledge" (cf. Jessup *et al.*, 2004:281). However, this will affects especially those who don't have access to ICTs. As a result, it leads a person to be excluded from knowledge level and is also missing out many opportunities.

It has been noted that the language is a driving factor and a major barrier of DD. Language is the primary vector for communication and is a tool to communicate the information. It is well known that the Internet is dominated by the language of English. On the Internet, majority sources are available only in the language of English. In terms of the Internet access and utility, the richest linguistic group is English speakers. Many



non – English speaking countries are uncomfortable with the language of English. So, it becomes a difficult to use the Internet by the people who doesn't know the language of English and lack of English proficiency has created a 'computer fear'. In India and other developing countries, the disparity is much wider. As a result, people residing in rural areas are hesitant to use the internet due to lack of English proficiency. Thus, it becomes obstacle for them who do not know the language of English. For instance, a person who works in medical field, she or he can gain a global knowledge about the diseases, techniques, job opportunities, etc. It is possible only when she or he has good access to computer and internet facilities, which can be accessed in a better way with the knowledge of English.

It is interesting to note here technology creates a divide between those who could afford new technology and those who could not. It is well-known fact that economy plays a vital role and becomes a chief creator of DD. This technological gap is largely based on income differences. Those who have better income possess more access to technology than the poor neighborhoods one. Students from wealthy families learned better computer skills than students from poor and minority families. In other words, affluent people can buy or access the computers and avail the Internet connection, where low income families are unable to afford new technology. The major factor that is bound with DD is poverty. Due to poverty millions of people are unable to have computer ownership, access to computers, and access to the Internet connection. In the present situation, hardware, software, and Internet connection is often too expensive for the average person. The so called the Internet refers to a communication system, which allows people to share information globally, communicate with people (family, friends, relatives, etc.), information about financial data, world



news, government actions. For these things, people needs computer with Internet connection, so it requires money. Thus, the DD is closely associates with merely an economic divide or financial one.

It is true that DD affects not only those in urban areas, but also those in rural areas. The urban centers have much better facilities and easily available technical resources as compared to rural areas. However, there are many people in rural areas who do not know how a computer or any other innovative technological tools looks like and also do not turned on computer. It seems likely the vast majority of the rural population will be excluded from an information society. From the rural background, patient's participation in health care is very less compared to urban areas. As a result, those who live in rural areas, they are most underprivileged and vulnerable sections in this accessibility of ICT.

In fact, many researchers discussed the DD from the dimension of age. This divide exists between generations. Compared to earlier days young people have great familiarity with new digital technologies than any other old aged group. And also youth have better technological literary skills than older people. In both developed and developing nations, the Internet penetration rate among younger people is substantially higher than that among older people. It is important to note that all these technologies such as cable television, the Internet, computers, laptop and mobile phone and other devices were not always readily available for previous generations. However, generation gap also plays pivotal role in this respective issue.

The digitalized era was earlier philosophically considered to preach equality among the humanity. But with the advent of ICT, the male chauvinistic society did not spare to divide the gender as what we call as DD. Historically, women have had little access to media and communication

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technologies. As a matter of fact, there is a distinct DD that exists between male and female segment. Research has showed that is the result of social inequities and women participation is very less most of the field including IT. Regarding in this case, women enjoy very less access to information technology than men. Gender DD refers to access rates between both males and females. It is true not only the underdeveloped countries, but also the developing and developed countries. Kennedy *et al*, expresses that most women have been online less than men and when they do go online they spend less time on the Internet than men do (Kennedy *et al*, 2003:73). They argue that according to the society's norm girls and boys raised up differently, with girls not advised to have interests in computer and scientific objects. Interestingly, Kennedy *et al* states that it is not enough just to know the gender roles exists but we should know and understand why it exists and how it plays a role in gender and Internet use. (Kennedy *et al*, 2003:75). It is observed that access to training in information technology is not equitable and some people have greater access than others with the likelihood depending on the income, racial and gender categories of which people are members. White Americans are more likely to have access to computers and the Internet than African Americans. Males have more access than females, and wealthier Americans have more access regardless of race and gender (Cooper and Weaver, 2003: 3). Technologies should be equally accessible both male and female because everybody was born with rights. If there is no access to ICTs for women, they become an economically backwardness, which in turn makes any countries poor. When we look into the world population, in any country, in any state women constitute a reasonable number of populations. In such case or scenario, leaving women population behind will always lead to a definite divide both gender as well as digital. I believe that libraries are the greatest place for women to access

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Internet based technologies and gain technology skills. Access to technology and media is an indispensable for women's empowerment. However, the gender gap in the DD is much concern today. As the discussion above, it is clear that the emergence of DD has many dimensions.

Understanding the digital divide

A number of scholars are engaged in a vigorous debate about this issue. Basically, when we are dealing, we need to understand the issue from the broadest sense. Why is it important to understand this social and ethical issue? In fact unequal income refers to an economic divide; unequal knowledge refers to knowledge divide and presently digital technologies create digital divides. Inequality in the world is very high around the globe. Exclusion and inequality are always present throughout the human civilization and still exists. Equality is often judged by comparing one particular aspect of an individual, such as income, wealth, happiness or education with the same aspect of another. Dallmayr notices that there are three major areas leads to global inequality, namely power, wealth and knowledge (Dallmayr, 2002). Servon tries to connect the DD with poverty and inequality. She argues that is "a symptom of a much larger and more complex problem- the problem of persistent *poverty* and *inequality*" (Servon, 2002). The researchers of DD likely to begin with political and ethical positions regarding the subject matter. Ethical considerations are central to all social as well as philosophical research. The question of ethics prevails everywhere and whenever the dilemmas arise, especially when it goes in the process of setting something right and wrong. Why there is a need for such dichotomy and why those should necessarily attend without fail. According to Hongladarom (2003) naturally the DD concerns many issues not only in social philosophy, but also in political philosophy. It is clear that the DD is an aspect of the problem of social inequality and the global



DD is a problem of global justice because the divide clearly indicates an inequality between the two worlds. There is the divide between those who have access to IT and those who do not. Furthermore, as there are dimensions to inequality, so there seem to be many dimensions to the DD also. Moreover philosophers should always to be open and try to find solutions and approaches that could help to have a better understanding and give a good lead to the current issues of concern. As well Hongladarom states every single problem can be viewed through every branches of philosophy and only the philosophers can guide better and pragmatic solutions to the all problems rise in the course of any developmental process.

Several researchers have been suggested that digital inequality in the area of an alternative to the DD phrase. Kvansy's study goes beyond describing the DD to analyzing "*digital inequality*". She uses the concept of digital inequality, "to signify a shift and distinction in focus from access to use of information technology" (Kvansy, 2002:16). Hamelink analyses the context of information technology using the 'standard of equality' and says that both the traditional human rights theories and the liberal foundations of human rights law assume that all human beings are equally capable asserting their rights. He says, "*In reality, the powerful are always better in asserting their rights through litigation than the less powerful*" (Hamelink, 2000:80). He further defines equality as "equal entitlement to the social conditions that are essential to emancipation and self development. Increasingly, access to digital ICTs is seen by many as a social condition that is equally essential for the members of a community as water, energy and road systems" (Hamelink, 2000:80). Johnson's popular book entitled on "*Computer Ethics*", discussed access and the DD. She argues that unequal access poses a serious threat to democracy. Democratic societies are committed to the idea that every citizen is equal with respect



to the state and the law; that is, democratic societies are committed to *political equality*. However, political equality cannot be entirely separated from social and economic inequality. That is, social and economic *inequality* can lead to political *inequality*. Hence, democratic societies have to be concerned about social and economic inequality. Unequal access to a powerful resource such as computer and information technology can skew social and economic opportunities. Unequal access to a powerful resource can give some individuals much more power than others, so much so that democracy is threatened. In addition to IT and the Internet are means, not ends. They are tools or powerful resources. These tools assist individuals and organizations in acquiring goods and achieving goals (Johnson, 2001: 218-220). However, she explained how computers affect the relationship between haves and have-nots and also access to computer and IT is important for democracy.

As the above discussion, the DD's debates appear to concern social inequality. The major concern about of this issue is that technology will cause technological inequalities and force new disparities within and between countries. There is always discrimination and unequal access towards any resources and it is also prominent in the field of IT. Those who do have the power, they enjoy and those who doesn't have they suffer, this is applicable to the IT field too. Social stratification is prominent in the world. In the world, already people are divided on the basis of class/ income, race/caste, education, age group, gender and ethnicity. Because our Indian societies are unequal, so is the disparity of the Internet. The ability to access the information technology further breaks them into pieces. This divide distinguishes educated from illiterate, men from women, and rich from poor, young from old, urban from rural. Therefore, lack of access lead to an inequality and brings out social exclusion. The causes of this



inequality of access to ICTs are clearly closely related to broader patterns of socio-economic inequality. However, if we view the DD through the eyes of underprivileged, we then can begin to understand the existential significance of this problem.

Conclusion

This paper tried to explain that highly industrialized nations, developing and economically deprived countries face a new important social and ethical problem that is called the DD. It is true that the DD exists between various segments such as rural/urban, men/women, young/old, etc. It would seem that there is too much of inequalities (social, economic, and political) exist in the Age of Information. On the one hand, technological development is tremendous. And the other hand, this technological development creates a new kind of disparities in our society. While modern discrimination exists between *poor in information* and the *rich in information*. The DD is a product of old inequality and new inequalities are appearing. The existing inequalities came to new form as that of the old saying, the 'old wine in the new pot'. I feel that the topic of the DD is currently a vibrant issue that needs a deliberate debate. According to me, the DD is nothing, but it is the reflections of social divide. Social divide leads to technological divide and this technology divide encourages social divide more and more. If underprivileged or unfairly disadvantaged people get an access to this social medium, they will be able acquired benefits such as information, access to up-to-date data, knowledge (political, etc.) and so on. If it is really concern about the Internet access means, then it is a matter of justice. However, it is clear that the DD is a serious social problem and needs urgent attention. Access to technologies fails in bridging this digital gap; people need to be trained in accessing this technology.

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Even though training is important in bridging this gulf, it becomes once sided without the aid from 'policy making'.

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A STUDY OF SOCIAL SKILLS AMONG SCHOOL CHILDREN WITH SPECIAL REFERENCE TO THEIR GENDER

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Introduction

Education is one of the basic activities of people in all human societies. The continued subsistence of society depends upon the transmission of culture to the young. It is essential that every new generation must be given training in the ways of the group so that the same tradition will continue. Every society has its own ways and means of fulfilling this need. Education has come to be one of the ways satisfying the need. The main social objective of education is to complete the socialization process. The school and other institutions have come into being in place of family to complete the socialization process. The family may fail to provide the child the essential knowledge of the social skills and value of the wider society. The school or the educational institutions can help the child to learn new skills and learn to interact with people of different social backgrounds.

Social skills have been characterized both in terms of 'ability' [1] (Combs & Slaby, 1977) and in terms of 'behaviour'. Rinn & Markle[2] (1979) define social skills behaviorally as a repertoire of verbal and nonverbal behaviors by which children affects the responses of other individual (e.g. peers, parents, siblings and teachers) in the interpersonal context. This repertoire acts as a mechanism through which children influence their environment by obtaining, removing or avoiding desirable and understanding outcomes in the social sphere.



Social skill is any skill facilitating interaction and communication with others. Social rules and relations are created, communicated, and changed in verbal and nonverbal ways. The process of learning such skills is called socialization.

Children's social skills are important for early school success and later adjustment. Research has documented that children without an adequate amount of social skills are at risk for difficulties including peer rejection, behavior problems, and poor academic achievement. Moreover, recent research shows disturbing rates of eviction in preschool and kindergarten, which has fueled efforts to promote these skills [3] (Gilliam & Shahar, 2006). Broadly speaking, social skills describe how children find the way social and learning contexts and can be conceptualized as including interpersonal skills and learning-related skills. An interpersonal skill refers to the ability to perform competently in social situations, including interacting positively with others, cooperating, sharing, and respecting peers. Researcher has found that interpersonal skills are important for peer acceptance and social adjustment throughout childhood and adolescence [4]. (Masten et al., 2005).

The quality of the parent-child attachment relationship also predicts children's social skills. A number of studies have found that having a safe attachment with a parent allows children to express emotion effectively and develop strong self-regulatory skills. Moreover, studies of attachment highlight the importance of the child's behavior, including reactivity and responsiveness, in helping to shape the attachment relationship [5].(Calkins, 2004).

From early days through teenage years, social skill development occurs through a mutual and bidirectional relationship between a child's



individual characteristics (e.g., temperament) and the environment (e.g., parent love and sensitivity, family factors, and peers). Children begin developing social skills within the context of the parent-child attachment relationship [6] (Rubin, Bulkow-ski, & Parker, 2006). It is from this relationship that children learn to read emotional cues, regulate their own emotions and behavior, and incorporate the responses of their parents into their own experiences with people and situations; a process known as social referencing [7](Thompson & Lagattuta, 2006). From observing family members, children learn appropriate social rules and behaviors, which they apply to interactions outside of the family.

SIGNIFICANCE OF THE STUDY

It is important for children to learn socialization skills in school and at home. Children are naturally egocentric, thinking of themselves as the center of their world, at birth. It takes development and training to teach children to think of others as well as themselves.

This tendency is not negative, and is inborn in all human beings. However, for children to operate successfully in society, they must learn to interact with others in a healthy, positive, and productive manner. In order to prepare children to be successful in adults, it is crucial that we as adults encourage social interaction, monitor social skills, and teach healthy ways to interact with other children and with adults. Socialization skills are important not only in school but in all of adult life as well.

Social Skills occupy an important place in every individual child's life for their bright and healthy future. Parents and Teachers are playing a major role to provide the suitable environment and give an opportunity to practice the skills in home and their classroom situation. Thus researcher's study will be proved very beneficial for teachers, Teacher



educators and policy makers to provide healthy social environment. Social skills could be inculcated in the students so that they will become socially civilized citizens and contributes maximum to the society.

STATEMENT OF THE PROBLEM

“A STUDY OF SOCIAL SKILLS AMONG SCHOOL CHILDREN WITH SPECIAL REFERENCE TO THEIR GENDER”

OPERATIONAL DEFINATION OF THE TERM USED:

The term used in the statement problem, are defined operationally below:

SOCIAL SKILLS: Social skills can be defined as the set of skills people use to interact and communicate with one another.

SCHOOL CHILDERN: School children are those children who are studing in secondary level of the school. They are early adolescents.

OBJECTIVES OF THE STUDY

1. To find and compare of Social Skills and its dimensions (Presentation Skill, Interaction Skill, Conversation Skill, Social Integration skill, Attitude towards Children, Attitude towards Adults) among School Children.
2. To examine and compare of Social Skills and its dimensions (Presentation Skill, Interaction Skill, Conversation Skill, Social Integration skill, Attitude towards Children, Attitude towards Adults) between Boy and Girl School Children.

HYPOTHESIS OF THE STUDY

1. There is no significant difference in mean scores of Social Skills among School Children.



2. There is no significant difference between mean scores of Boy and Girl School Children in relation to their Presentation Skill.
3. There is no significant difference between mean scores of Boy and Girl School Children in relation to their Interaction Skill.
4. There is no significant difference between mean scores of Boy and Girl School Children in relation to their Conversation Skill.
5. There is no significant difference between mean scores of Boy and Girl School Children in relation to their Social Integration Skill.
6. There is no significant difference between mean scores of Boy and Girl School Children in relation to their Attitude towards Children.
7. There is no significant difference between mean scores of Boy and Girl School Children in relation to their Attitude towards Adults

METHODOLOGY:

This study falls under the category of descriptive research. Thus, survey method was adopted to carry out the research work.

POPULATION:

The population of study consist of all school children of secondary level in Ghaziabad district.

SAMPLE:

In the present study, sample consisted of 100 school students, 54 boys and 46girls from secondary schools through purposive convenient sampling method

RESEARCH TOOLS EMPLOYED:

For data collection "Social Skills Problem Behavior Checklist" by Madhu Mathur and Saroj Aurora was used to measure the problem of



social behavior in school children with the components of social skills (Presentation skill, interaction skill, conversation skill, social integration skill, attitude towards adults and attitude towards children.

STATISTICAL TECHNIQUES USED:

The data were analyzed with the appropriate statistical measures to justify the objectives of the present study. The investigators employed Mean, Standard Deviation and t-test for the analysis of the data.

DATA ANALYSIS, INTERPRETATION AND DISCUSSION OF RESULTS:

The analysis of data collected by the investigators was done in order to make inferences and generalizations about the population. Statistical Package for Social Science (SPSS) Version 20 was used for the analysis of data.

Table 1. Showing the Comparison of Social Skills of boy and girl school children

Gender	No.	Mean	SD	't' value
Boy	54	112.2	3.51	10.9*
Girl	46	104.9	3.23	

***Significant at 0.05 and 0.01 level of significance**

The data shows that the 't' value is 10.9 which is greater than the 't' value at 0.05 level of significance (DF = 98). Hence the null hypothesis – "There is no significant difference in mean scores of Social Skills among school children", has been rejected at both level of significance and it can be said that boy school children and girl school children differ significantly in relation to their social skills .

Since 't' value is significantly at 0.05 level of significance and mean score of boy school children is more than the mean score of girl school children . It means girl school children are better in relation to their social skills than the boy school children.



Table 2. Showing the Comparison of Presentation skills (A dimension of Social skill) between Boy and girl School Children

Gender	No.	Mean	SD	't' value
Boy	54	9.26	0.82	5.95*
Girl	46	8.15	1.03	

*Significant at 0.05 and 0.01 level of significance

Calculate 't' value is 4.95 which is greater than the 't' value at both (0.05 and 0.01) level of significance (DF = 98). Hence the null hypothesis – "There is no significance difference between mean scores of boy and girl school children in relation to their presentation skill", has been rejected and it can be said that boy school children and girl school children differ significantly in relation to their presentation skill a dimension of social skill.

Since 't' value is significant at 0.01 level of significance and mean score of boy school children is more than girl school children . It means girl school children are better in relation to their presentation skill a dimension of social skills than the boy school children.

Table 3. Showing the Comparison of Interaction Skill (A Dimension of social skill) between Boy and Girl School Children

Gender	No.	Mean	SD	't' value
Boy	54	10	1.26	0.39*
Girl	46	10.1	0.89	

*Not Significant at 0.05 level of significance

Table no. 3 shows calculated 't' value in above table is 0.39 which is less than the both (0.05 and 0.01) levels of significance (df = 98). Hence the hypothesis – "There is no significant difference between mean scores of boy and girl school children in relation to their interaction skills", has been accepted and it can be said that boy school children and girl school children are not differ significantly in relation to their interaction skill of social skills.

It reveals that boy school children and girl school children are equal to their interaction skill a dimension of social skills.



Table 4. Showing the Comparison of Conversation Skill (A dimension of social skill) between Boy and Girl School Children

Gender	No.	Mean	SD	't' value
Boy	54	22.8	1.26	*3.81
Girl	46	21.7	1.59	

***Significant at 0.05 and 0.01 level of significance**

Calculated 't' value is 3.81 which is greater than the 't' value at both (0.05 and 0.01) levels of significance (DF=98). Hence the null hypothesis – "There is no significance difference between mean scores of boy and girl school children in relation to their conversation skill", has been rejected and it can be said that boy school children and girl school children differ significantly in relation to their conversation skill.

Data shows that mean score of boy school children is more than the mean score of girl school children. It means girl school children are better in relation to their conversation skill than the boy school children.

Table 5. Comparison of Social Integration Skill (A dimension of social skill) between Boy and Girl School Children

Gender	No.	Mean	SD	't' value
Boy	54	22.2	1.33	2.59*
Girl	46	21.4	1.94	

***Significant at 0.05 and 0.01 level of significance**

Showing 't' value is 2.59 which is greater than the 't' value at both (0.05 and 0.01) levels of significance (DF=98). Hence the hypothesis – "There is no significant difference between Boy and Girl in relation to their Social Interaction Skill", has been rejected and it can be said that boy school children and girl school children are differ significantly in relation to their social integration skill .

It reveals that girl school children are better in their social integration skill than the boy school children.



Table 6. Showing the Comparison the attitude towards Children (A dimension of social skill) of Boy and Girl School Children

Gender	No.	Mean	SD	't' value
Boy	54	18.3	2.62	0.73*
Girl	46	18.7	1.87	

*Not Significant at 0.05 level of significance

Showing 't' value is 0.73 which is less than the value at 0.05 level of significance (df=98). Hence the hypothesis – " There is no significant difference between mean scores of Boy and Girl in relation to their Attitude towards Children", has been accepted and it can be said that boy school children and girl school children not differ significantly in relation to their attitude towards children.

It means boy school children and girl school children are equal in relation to their attitude towards children.

Table 7. Showing the Comparison of Attitude towards Adults (A dimension of social skill) between Boy and Girl School Children

Gender	No.	Mean	SD	't' value
Boy	54	28.6	1.98	11*
Girl	46	23.9	2.25	

*Significant at 0.05 and 0.01 level of significance

Find 't' value is 11 which is greater than the 't' value at both (0.05 and 0.01) levels of significance (df=98). Hence the null hypothesis – "There is no significance difference between mean scores of Boy and Girl School Children in relation to their Attitude towards Adults" has been rejected and it can be said that boy school children and girl school children differ significantly in relation to their attitude towards adults.

Data shows that mean score of girl school children is less than the mean score of boy school children which said that the girl have less problem of attitude towards adults.



FINDINGS OF THE STUDY:

On the basis of analysis of the data presented in the fore going pages the findings are

- There is no significant difference in mean scores of Social Skills among school children" , has been rejected at both level of significance and it can be said that boy school children have more problem of social skills than girl school children
- There is no significance difference between mean scores of boy and girl school children in relation to their presentation skill, has been rejected and it can be said that girls are more presentable than the boy school children.
- There is no significant difference between mean scores of boy and girl school children in relation to their interaction skills", has been accepted and it can be said that girls and boys both have equal skill of interaction.
- There is no significance difference between boy and girl school children in relation to their conversation skill", has been rejected and it can be said that girls have good power of conversation than boys.
- There is no significant difference between Boy and Girl in relation to their Social Interaction Skill", has been rejected and it can be said that girls are more socially integrated than boys.
- There is no significant difference between mean scores of Boy and Girl in relation to their Attitude towards Children", has been accepted and it can be said that boy school children and girl school children have equal attitude towards children.



- There is no significance difference between Boy and Girl School Children in relation to their Attitude towards Adults” has been rejected and it can be said that the attitude of girls are better than the attitude of boys towards adults.

CONCLUSION:

In this study, the result is concluding that the girls have less social skills problem of behaviour than boys. In this modern society, girls are actively participating in several social activities but boys are most probably like to be in their groups/gangs. By this, it understood that boy more frequently due to their ill health experiences gained from the peers/society.

It may be said that for reducing the behavioural problem parents and teachers both are should remain active towards child’s activity, their groups specially boys. Actively participate to them in social programmes and cultural programmes in family, society and schools. Motivate and appreciate them for participation in activities.

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CONSCIOUSNESS AND ITS PLACE IN THE SCIENTIFIC VIEW OF THE WORLD

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Humans have a common intuition of an observing self that has access to conscious sensations, inner speech, images and thoughts. Philosophers such as Gilbert Ryle¹ denounced this idea as fallacious, but current evidence seems broadly supportive. This issue has become more pressing in the past decade as scientists have begun to revisit the basic topic of conscious experience. To study consciousness is to study a deep mystery about ourselves. It is to study the nature of our *existence*, but not the kind of existence that physics and the other sciences study, study the *objective* existence of atoms, galaxies, oceans, cells, time and space, among other things. Consciousness study deals with the fundamental nature of our *personal* existence, our *subjective* existence, our life as a sequence of subjective experiences. In this field of science, we want to understand ourselves not only as entities that are alive and behave or interact with their environment, like bacteria or trees or dragonflies do, but also as beings who directly *experience* or *feel* or *sense their own existence*, who are alive in a sense fundamentally different from the ordinary biological notion of 'being alive'.

Being alive as a conscious subject is something much more than being alive in the purely objective biological sense. A conscious being is not merely alive in the sense of realizing a collection of physiological processes and capacities (such as growth or self-replication) that separate

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biological organisms from nonliving physical systems. A conscious being is *mentally, internally* alive. Unlike physical objects and simple biological organisms, a being that possesses a conscious mind also senses or feels or experiences its own existence. To crystallize this idea: A conscious being has an *internal psychological reality, a mental life* consisting of subjective experiences, with a *stream of consciousness* flowing within. The inner stream of subjective experience, which is directly present for us and continuously revealing itself to us, is consciousness.

Consciousness as the seat of our subjective experiences is the mystery to be solved by science. In particular, it is the very phenomenon to be described and explained by the science of consciousness, which is why we may call this new science by the name 'The Science of Subjective Experience', or 'The Science of Subjectivity'. Hence the study of consciousness is an invitation to understand the mystery of consciousness and an introduction to the new science that specifically enquires into the mystery. We need to understand what kind of challenge consciousness poses to current science and we need to review the modern scientific approaches to the study of consciousness. Whether or not they will ultimately be successful in solving or removing the mystery of consciousness may be too early to tell.

David Chalmers the Australian philosopher introduced the easy and hard problems of consciousness². The easy problems of consciousness are those concerned with the question of how the mind can process information, react to environmental stimuli, and exhibit such capacities as discrimination, categorization, and introspection. All of these abilities are impressive, but they are, according to Chalmers, not metaphysically baffling, since they can all be tackled by means of the standard repertoire of cognitive science and explained in terms of computational or neural



mechanisms.³ The hard problem of consciousness is the problem of why, in addition to the information processing that the brain engages in, there must be a feeling of what it is like associated with the neural processing. We can establish that certain function is accompanied by certain experience but we have no idea how that happens. Regardless, how closely we scrutinize the neural mechanisms we seem to have not getting the answer for that. It is clear that a new field, specifically concentrating on consciousness, is urgently needed. The already existing fields that study the mind or the brain have ignored consciousness. Psychology, behavioural science, cognitive science and cognitive neuroscience have avoided consciousness or have been reluctant to put subjective experience into the focus of their research programmes. Those fields of study are more interested in such things as behaviour, representation, information processing, neural activity and other perfectly *objective* phenomena that are fundamentally different from subjective mental life. Therefore, a fresh start is required in order to scientifically zoom in on the subjective stream of experience, or consciousness itself. But what exactly is such a science all about? Do we have a clear enough idea of consciousness to approach it scientifically? What is our 'inner mental life' the 'subjective psychological reality'? Perhaps we need some clarification of this at the outset.

A person's subjective psychological reality contains all the experiences one has at any particular moment. It consists of different perceptual experiences, such as seeing colours, shapes and visual objects, located within a perceptual space extending in all directions. It contains auditory experiences whose sources are perceived to be located in the space around you. It contains smells and tastes, such as the sweet fragrance experienced when deeply sniffing a rose, eyes closed (as in the cover image of this book). Furthermore, it contains feelings, emotions and bodily



experiences; you perceive and feel your body as being a part of the world around you, but you also experience your body from the inside, as a three-dimensional, living, feeling, moving entity whose behaviour you can control at will. You have a mental space where thoughts are entertained, where internal images pass by, memories are relived and where you feel the pull of desires. Taken together, these experiences – the perceptual, the bodily and the mental – form the contents of your subjective psychological reality.

Experiential events are fleeting. They are directly and vividly present in consciousness only briefly, only for a few seconds perhaps. The contents of the stream of experience flow ever onwards. The patterns of experience change all the time, some only gradually, some abruptly, but they never cease to move on. Yet, there seems to be a persisting subject – or perhaps the underlying mental ‘space’ of experience itself – that never changes. Underneath the ever-changing patterns in the restless stream of experience there is the stable riverbed that unifies these experiences into a single inner world, thus forming a single unified psychological reality, the *world-for-me*, a spatial unity and a temporal continuity of consciousness and self that transcends the short-lived and changeable contents that come and go.

The flow of subjective experiences constitutes our conscious life as we know it. We know not exactly when it first started flowing, but ever since the beginning it has been going on, save for brief pauses during the night in deep sleep when even the faintest dream images cease to exist. We know not when it will come to an end, to a final moment of consciousness, or even if it ever will. “Is there life after death?” should be rephrased as ‘Will there still be a subjective psychological reality going on for me after death?’ or ‘Will some sort of flow of subjective experiences continue for me even after my body and my brain are no longer alive in



the biological sense of the word'? These are ultimate – and challenging – questions, and the answers depend on the discoveries to be made in the science of consciousness.

Why consciousness is considered a 'mystery'? After all, we know consciousness intimately from the inside, it is the most natural thing there is for us and it is ever present in our lives. Of course, in that sense there is no mystery at all about consciousness. In fact, there is nothing in the world that we would be acquainted with better than the subjective experiences vividly present for us all the time. The problem, the absolute mystery, is elsewhere: we do not know how to fit consciousness together with the world-view of science. There have been a whole lot of theories to explain the mystery of consciousness. Both philosopher and scientists have engaged themselves for decades by suggesting various theories to explain consciousness. A few of them are worth mentioning here. In multiple drafts theory (Dennett 1991) Dennett argues that consciousness is not a fundamental feature of the universe and instead will eventually be fully explained by natural phenomena.⁴ He says consciousness merely plays tricks on people so that it appears nonphysical. It simply seems like it requires nonphysical features to account for its powers. In this way, Dennett compares consciousness to stage magic and its capability to create extraordinary illusions out of ordinary things.⁵ Global workspace theory (Baars 1988) suggests, consciousness resembles a wide network of connections between specialized, non-conscious processing modules that compete for access to the global workspace. The message that wins the competition and spreads across the whole workspace forms the current content of consciousness. Neurobiological theory (Crick and Koch 1990) explains consciousness by finding the neural correlates of consciousness, defined as *the smallest set of brain mechanisms and events sufficient for*



some specific phenomenal state. Ultimately, if consciousness can be explained at all, it will be explained in neuronal terms. Externalist representationalism (Tye 1995). The core assumption in representationalist theories is that all conscious states are representational states, that is, states that carry information about external (or intentional) objects or states of affair. In the early 1990s John Searle turned his attention to the problem of consciousness. In his widely known book *The rediscovery of the mind* (1992), Searle formulated a view of consciousness called "biological naturalism". According to this view, consciousness is a biological phenomenon, a higher level feature of brain activity.

Physics and the other natural sciences describe a world where particles, force fields, atoms, molecules, stars and planets exist in an objective way and causally interact with each other. So far as we know, none of the things thoroughly described and explained by the sciences has an inner psychological reality, a stream of subjective experiences. Thus, despite all the amazing progress in physics, chemistry, biology and neuroscience, science remains incapable of describing – or even acknowledging the existence of – an inner subjective life. No matter how carefully we study the physics, chemistry and biology of an animal, the empirical evidence we acquire does not in any objective manner reveal whether the animal in some way feels or senses its own existence – whether it has an inner subjective psychological reality or not – nor, if it does, what its subjective experiences are like, what it would be *like to be* that animal and to see the world through its eyes.

At present we have no idea how our inner life could be explained in harmony with the world-view of the natural sciences. In that world-

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view, there is nothing that even remotely resembles our subjective lives. On the contrary, the scientific picture of the world is in many ways directly in conflict with our subjective experience. The physical universe as a whole is a giant, stagnant object in four-dimensional space– time where the dimensions of space and time all exist in one piece and nothing ever “happens”. Past, present and future are simply different parts of the temporal dimension that coexist with each other and are equally fixed. The universe as described by physics has no particular moment of “now” that would be unique, in that only there do events flow forward, and behind it the past is fixed and before it the future lies wide open. The universe as described by the natural sciences includes no subjective qualities such as those that characterize each and every one of our experiences: colours, tastes, tones, pains, odours, feelings. The world as described by science consists of spatiotemporal causal structures, physical entities at microscopic (forces, particles, waves, fields) and macroscopic levels (planets, galaxies) and laws and mechanisms that can be described objectively and quantitatively. By contrast, our subjective psychological reality is a forward-moving stream of qualitative experiences, located at a particular time and place in the physical universe, always happening in the “here and now” and taking place within a particular person’s mind (or brain). How can such a thing exist in the physical universe? Is it something over and above the physical – something other-worldly, a spiritual bubble, a wandering soul – that has become attached to a biological organism inside the physical world? Somehow this small drop of precious soul-stuff seems to blow an inner mental life into the organisms it inhabits, to live a life through them and to see the world through their eyes. Is that the way we are – tiny drops of magical soul-stuff trapped inside material human bodies that are located inside the giant physical machinery of the universe? If

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such a spiritual view of ourselves seems to be out of the question, then is our consciousness just some kind of complex physical or biological mechanism in our bodies? Is our precious inner world simply made out of quite ordinary, slimy and boring brain-stuff with no other-worldly magical souls involved?

As these profound questions suggest, the science of consciousness is about our very existence. What kind of beings are we really – ourselves, our souls, if you like – in the final analysis? What is consciousness? Who or what is the 'subject' or the 'self' who has my conscious experiences? What are our thoughts, experiences and memories *made of*? What about moments of intense joy, happiness, beauty and awe, when we seem to reach a higher consciousness, full of meaning: are they only fleeting electrochemical symphonies played by billions of neurons in harmony, or perhaps glimpses of another-worldly mental realm, entirely beyond matter? Are we, our inner selves, something spiritual, soul-like; could our subjective life thus survive bodily death? Could our consciousness perhaps be reborn in some other life-form, so that after death there would be an inner life once again for us, though in a form unlike the present one? The answers to these rather fundamental questions depend on what the science of consciousness will find out about our subjective psychological reality and about its physical seat, our brain.

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SUPPORT VECTOR MACHINE AND ITS APPLICATION

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I. Introduction

Support vector machine mainly constructs a hyper plane or set of hyperplanes, which can be used to classify data, regression or other tasks. Good separation is achieved by the hyper plane that has the largest distance to the nearest training data point of any class which is called as functional margin.

Since in general larger the margin large is the generation error. It can happen that the sets to discriminate are not linearly separable in that particular space. To solve this problem, it was proposed that original finite dimensional space be mapped into a much higher dimensional space so that separation becomes easier in that space. Mapping used by SVM scheme are designed to ensure that dot product may be computed easily in terms of the variables in the original space, by defining them in terms of the kernel function that is $k(x,y)$.

SVM belongs to the broad family of kernel-based algorithm. SVM can be used for classification and can perform well than any other classification algorithm which are available. Also SVM is a relatively new learning method as compared to other traditional methods used for binary classification. The basic idea behind this working is to find a hyper plane which separates data perfectly into its two classes. SVM are well founded



and have shown to be practically successful. It has also been extended to solve regression tasks where the system is trained to output a numerical value, rather than yes/no classification. A support vector machine (SVM) is a computer algorithm which learns by example how to assign labels to objects. For instance Support Vector Machine Classifier introduced by Vladimir Vapnik in the early 1970's. This algorithm belongs to the broad family of kernel-based learning algorithms. It can be used for regression as well as classification of linear and non-linear data. Support vector machines seems to be a promising method for classification of data and knowledge discovery. Basically this concept comes from the frame work of statistical learning theory or Vapnik-Chervonenkis (VC) theory. VC theory is considered as most successful tool by now for accurately describing the capacity of the data. It is the theory mainly on the consistency of a learning process.

II. SVM CLASSIFICATION

The basic ideas behind the working of SVM algorithm can be explained without ever reading an equation. To understand SVM classification, following four points need to be understood :-

- A. Separating hyper plane
- B. Maximum-margin hyper plane
- C. Soft margin
- D. Kernel function.

A. *The separating hyper plane*

Separating hyperplanes are of two types: a) optimal separating hyper plane. b)generalized optimal separating hyper plane. Figure 1 is the example of optimal separating hyperplane and figure 2 is the example of generalized



optimal separating hyperplane. In figure 1 there are many possible linear classifiers that can separate the data into its two classes, but we have considered only one that maximizes the margin (maximizes the distance between it and the nearest data point of each class). This classifier is the generalized separating hyper plane so here in this case discussion has been restricted to the case where the data which is to be separated is linearly separable. However, there are two approaches to generalizing the problem, which are dependent upon prior knowledge of the problem and we have to estimate about the noise on the data. In the case where it is expected or possibly even known that hyper plane can separate the data. This separating hyperplane introduces an additional cost function associated with misclassification. Alternatively a more complex function can be used to describe the boundary in this case.

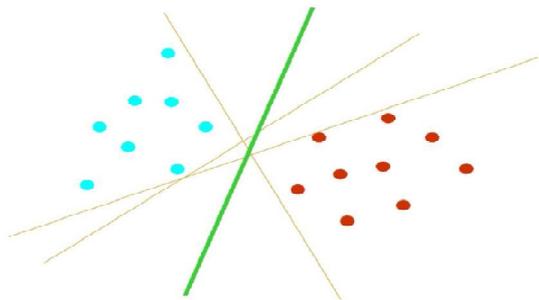


Figure 1 : Optimal Separating Hyper plane

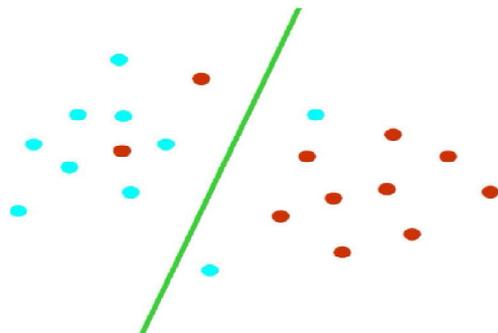


Figure 2: Generalized Optimal Separating Hyper plane



B. Maximum Margin

If data is linearly separable we can select two hyper planes in a way that they separate the data and there are no points between them and then try to maximize distance between them. The region bounded by them is called "the margin "and these hyper planes can be described by $w \cdot x - b = 1$ and $w \cdot x - b = -1$. By using geometry we find the distance between two hyper planes which is $2 / \|w\|$. Our aim is to minimize w .

C. Soft Margin

We have assumed that any data can be separated using a straight line. Of course, many real data sets cannot be separated as cleanly by using straight line, instead, they look like one straight line. Where the data set which is to be separated contains an error, we would like the SVM to be able to deal with errors in the data by allowing a few expressions to fall on the 'wrong side' of the separating hyper plane. To handle such problems, the SVM algorithm has to be modified by adding new concept known as 'soft margin'.

D. Kernal function

Sometimes we have the maximum-margin separating hyper plane. It is the case of non separable data set. Here in this case the problem is that no single point can separate the two classes of data and introducing a soft margin would not work. To handle such cases, the kernel function provides a solution to this problem by adding an additional dimension to the data.

III. SVM Classifier

In case of SVM, data point is viewed as a d -dimensional vector (list of d numbers) and we want to know whether we can separate such points with a



(d-1) dimensional hyperplane. Such classifier is called as linear classifier. There are many hyper planes that can classify the data but the best hyper planes are the ones that represents the largest separation or margin between the two classes. So we can choose the hyper plane such that distance from it to the nearest data point on each side is maximized. If such a hyper plane exists then it is called as maximum-margin hyper plane and the linear classifier defined by it is known as maximum margin classifier.

IV. Linear SVM

Suppose we have some training data D , a set of n points of the form $D=(x_i, y_i)$ and the value of y can be $+1$ or -1 indicating the class to which x_i belongs. Each x_i is a real vector. Now, we want to find the margin hyper plane that divides the points having $y_i=1$ from those having $y_i=-1$. For that we have equation of hyperplane $w \cdot x - b = 0$ where in this equation ' \cdot ' denotes dot product and w is normal to the hyperplane. The parameter $b / \|w\|$ determines the offset of the hyperplane from the origin. If given data is linearly separable then we can select two hyperplanes in a way that they separate the data and there are no point between them and then try to maximize distance between them. The region bounded by them i.e. called "the margin" and separating hyperplanes can be described by $w \cdot x - b = 1$ and $w \cdot x - b = -1$. By using geometry we can find the distance between two hyperplanes is $2 / \|w\|$ so as to minimize w .

V. Linearly Separable Binary Classification

We have L training data points, where each input x_i has D attribute is (i.e. is of dimensionality D) and is in one of two classes $y_i = -1$ or $+1$. Here we are assuming the data is linearly separable, meaning that we can draw a line on a graph of x_1 vs x_2 separating the two classes of data when $D = 2$ and a hyperplane on graphs of $x_1; x_2 : : : x_D$ for when $D > 2$.



This hyperplane can be described by $w \cdot x + b = 0$ where:

- w is normal to the hyperplane.
- $\frac{-b}{\|w\|}$ is the perpendicular distance from the hyperplane to the origin.

Support Vectors are the examples closest to the separating hyperplane and the main aim of Support Vector Machines (SVM) is to orientate this hyperplane in such a way as to be as far as possible from the closest members of both classes.

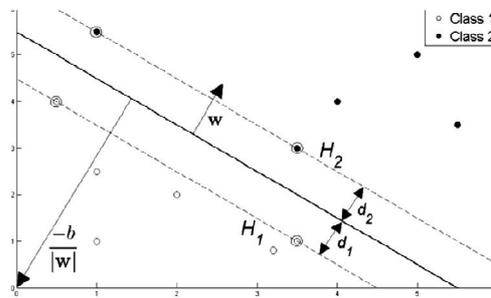


Figure 3:-Hyperplane through two linearly separable classes

Referring to figure 3, now we implement SVM to select the variables w and b so that our training data can be described as

$$x_i \cdot w + b = +1 \text{ for } y_i = +1 \dots \dots \dots (1.1)$$

$$x_i \cdot w + b = -1 \text{ for } y_i = -1 \dots \dots \dots (1.2)$$

If we now just consider the points that lie closest to the separating hyper-plane which is known as the Support Vectors (shown in circles in the figure 3), then the two planes H_1 and H_2 on which these points lie on can be described by:

$$x_i \cdot w + b = +1 \text{ for } H_1 \dots \dots \dots (1.3)$$

$$x_i \cdot w + b = -1 \text{ for } H_2 \dots \dots \dots (1.4)$$



Referring to figure 3, d_1 as being the distance from H_1 to the hyperplane and d_2 from H_2 to it. The hyper plane's equidistance from H_1 and H_2 means that $d_1 = d_2$. This quantity is known as the SVM's margin. In order to orientate the hyperplane to be as far from the Support Vectors as possible, we need to maximize this margin. Simple vector geometry shows that margin is equal to $1/\|w\|$ of w and by maximizing it we get minimum margin and vice versa [1].

VI. Classification of Genes Using SVM

Here we have take example of classification which we can understand with the example of classification of cancer gene. A support vector machine (SVM) is a computer algorithm that can learn by example to assign labels to objects. For instance, an SVM also can learn to recognize fraud credit card activity by examining hundreds or thousands of fraud and non-fraud credit card activity reports. Alternatively, an SVM can learn to recognize handwritten digits by examining a large collection of scanned images of handwritten zeroes, ones and so on. SVMs have also been successfully applied to an increasingly wide variety of biological applications. Here we consider a common biomedical application of support vector machines which is the automatic classification of microarray gene expression profiles. Theoretically, an SVM can examine the gene expression profile derived from a tumor sample or from peripheral fluid. There are many biological application of SVM, one of them is classifying objects as diverse as protein and DNA sequences. From the working of SVM we can say that an SVM is an algorithm for maximizing a particular mathematical function with respect to a given collection of data.

The problem of classifying cancer gene expression profiles is studied in this segment. For a given bone marrow sample, the microarray assay returns 6,817 values, each value of which represents the mRNA levels corresponding



to that particular given gene. Golub performed this assay on 38 bone marrow samples, 27 from individuals with acute lymphoblastic leukemia (ALL) and 11 from individuals with acute myeloid leukemia (AML). On the basis of this, SVM is able to tell the difference between ALL and AML expression profiles. If the learning is successful, then the SVM will be able to successfully diagnose a new patient as AML or ALL. This can be done on the basis of bone marrow expression profile. For now, to allow an easy, geometric interpretation of the data, imagine that the microarrays contained probes for only two genes. That is we are considering only two different genes. In this case, our gene expression profiles consist of two numbers, which can be easily plotted. We have selected the genes *ZYX* and *MARCKSL1*. The values are proportional to the intensity of the fluorescence on the microarray, so on either axis, a large value indicates that the gene is highly expressed and vice versa. The expression levels are indicated by a red or green dot, depending upon whether the sample is from a patient with ALL or AML. The SVM must learn to tell the difference between the two groups and, given an unlabeled expression, predict whether it corresponds to a patient with ALL or AML[2]. For understanding this application, we have to understand some concepts given below

A. *The Separating Hyperplane*

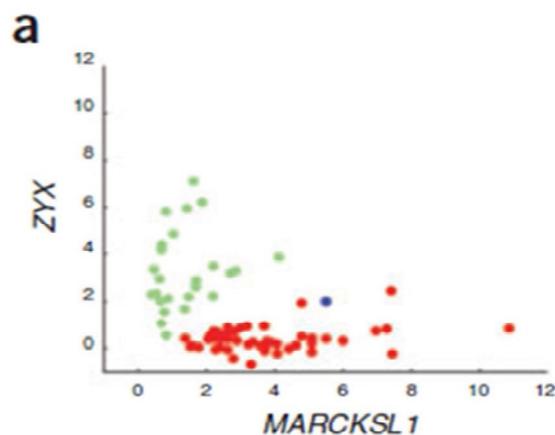
The human eye is very good at pattern recognition. A simple rule might state that a patient has AML if the expression level of *ABC* is twice as high as the expression level of *ZYX*, and vice versa for ALL. Geometrically, this rule corresponds to drawing a line between the two clusters. Subsequently, predicting the label of an unknown expression profile is easy, we just need to ask whether the new profile falls on the ALL or the AML side of the separating line. Now, to define the notion of a separating hyperplane, consider a situation in which the microarray does not contain just two genes. It may be a case where microarray can contain more than



two genes. But if the microarray contains a single gene, then the 'space' in which the corresponding one dimensional expression profiles resides is a one-dimensional line. We can divide this line in half by using a single point. In two dimensions, a straight line divides the space in half, and in three dimensions, we need a plane to divide the space. We can extrapolate this procedure mathematically to higher dimensions. The general term for a straight line in a high-dimensional space is a hyperplane, and so the separating hyperplane is, essentially, the line that separates the ALL and AML samples.

B. The maximum-margin hyperplane

The concept of treating the objects to be classified as points in a high-dimensional space and finding a line that separates them is not unique to the SVM. The SVM, however, is different from other hyperplane-based classifiers by virtue of how the hyperplane is selected. Consider again the classification problem portrayed in Figure 4. We have now established that the goal of the SVM is to identify a line that separates the ALL from the AML expression profiles in this two-dimensional space.





In other words, one would select the line that separates the two classes but adopts the maximal distance from any one of the given expression profiles. If we define the distance from the separating hyperplane to the nearest expression vector as the margin of the hyperplane, then the SVM selects the maximum margin separating hyperplane. Selecting this particular hyperplane maximizes the SVM's ability to predict the correct classification of previously unseen examples.

C. Soft Margin

So far, we have assumed that the data can be separated using a straight line. Of course, many real data sets cannot be separated as cleanly, where the data set contains an 'error', the circled gene expression profile. Intuitively, we would like the SVM to be able to deal with errors in the data by allowing a few anomalous expression profiles to fall on the 'wrong side' of the separating hyperplane. To handle cases like these, the SVM algorithm has to be modified by adding a 'soft margin'. Essentially, this allows some data points to push their way through the margin of the separating hyperplane without affecting the final result. In addition to allowing SVMs to handle nonlinearly separable data sets and to incorporate prior knowledge, the kernel function yields at least two additional benefits. First, kernels can be defined on inputs that are not vectors. This ability to handle non vector data is critical in biological applications, allowing the SVM to classify DNA and protein sequences, nodes in metabolic, regulatory and protein-protein interaction networks and microscopy images. Second, kernels provide a mathematical formalism for combining different types of data. Imagine, for example, that we are doing biomarker discovery for the ALL/AML distinction, and we have the Golub. Data plus a corresponding collection of mass spectrometry profiles from the same set of patients. It



turns out that we can use simple algebra to combine a kernel on microarray data with a kernel on mass spectrometry data. The resulting joint kernel would allow us to train a single SVM to perform classification on both types of data simultaneously[3].

VII. SVM Applications

1. Personal identification
2. Credit rating
3. Medical diagnosis
4. Text classification
5. Character recognition
6. Biometrics
7. Image classification
8. Delivers unique solution[4]

VIII. Conclusion and Future Scope

SVMs also perform better than a variety of alternative methods for classification. Using this non-separable data can be separated and we are able to assign an object to one of several categories. Also, we can recognize given data comes under which topic by text classification. By using kernel function, this technique becomes more flexible than traditional neural network. It is a relatively new learning method used for binary classification. By using kernel function, on-separable data can be separated. It is an exciting machine learning technique. It is the technique by which o/p is nearly equal to i/p. It provides evidence that SVM are well suited for text classification. It is a promising learning method originally developed for pattern recognition.



The most obvious drawback to the SVM algorithm, as described thus far, is that it apparently only handles binary classification problems. We can discriminate between ALL and AML, but how do we discriminate among a large variety of cancer classes? Generalizing to multiclass classification is straightforward and can be accomplished by using any of a variety of methods. Perhaps the simplest approach is to train multiple, one-versus-all classifiers. Essentially, to recognize three classes, A, B and C, we simply have to train three separate SVMs to answer the binary questions, "Is it A?" "Is it B?" and "Is it C?" This simple approach actually works quite well for cancer classification⁶. More sophisticated approaches also exist, which generalize the SVM optimization algorithm to account for multiple classes. For data sets of thousands of examples, solving the SVM optimization problem is quite fast. Empirically, running times of state-of-the-art SVM learning algorithms scale approximately quadratically, which means that when you give the SVM twice as much data, it requires four times as long to run. SVMs have been successfully trained on data sets containing approximately one million examples, and fast approximation algorithms exist that scale almost linearly and perform nearly as well as the SVM.

Using all 6,817 gene expression measurements, an SVM can achieve near-perfect classification accuracy on the ALL/AML data set. Furthermore, an even larger data set has been used to demonstrate that SVMs also perform better than a variety of alternative methods for cancer classification from microarray expression profiles. Although this primer has focused on cancer classification from gene expression profiles, SVM analysis can be applied to a wide variety of biological data. As we have seen, the SVM boasts a strong theoretical underpinning, coupled with remarkable empirical results across a growing spectrum of applications. Thus, SVMs will probably continue to yield

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valuable insights into the growing quantity and variety of molecular biology data.

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BIO GAS AS A CHEAPEST CLEAN ALTERNATIVE ENERGY SOURCE GLOBALLY CREATING AWARENESS AMONG AGRICULTURAL PEOPLE

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1. Introduction

Biogas has globally remained a renewable energy source derived from plants that use solar energy during the process of photosynthesis. Agriculture waste is mainly composed of three groups of polymers, namely cellulose, hemicelluloses, and lignin. Cellulose and hemicelluloses are sugar rich fractions of interest for use in fermentation processes. India stands second in the production of Fruits and Vegetables in the world. It contributes about 10 and 14% of Fruit and Vegetable in the world production. Vegetable Wastes are created during harvesting, transportation, storage, marketing and processing. Due to their nature and composition, they deteriorate easily and cause foul smell. in a rural areas a huge amount of agricultural waste are produced in fields. farmers are discarded these wastes in open palace which is very harmful for our health. so to overcome all these type of difficulties we can make biogas which is a alternate source of energy for peoples. The main source for production of biogas are cattle dung, night soil, poultry or piggery dropping, agricultural residues animals manure, Wood waste from forestry and industry, residues from food and paper industries, municipal green wastes, sewage sludge dedicated energy crops such as short rotation (3 to 15 years) grasses, sugar crops (sugarcane, beet), starch crops (corn, wheat) and oil crops (soy, sunflower, palm oil),



kitchen waste, household waste, green waste, human waste. Biogas is a gas whose primary elements are methane (CH_4) 50 to 75% and carbon dioxide (CO_2) 25–50 %, hydrogen (H_2); 0 to 1% , nitrogen (N_2) 5 to 10% , 1 to 2% hydrogen sulphide (H_2S). Water vapour (0.3%) and 1 to 2% hydrogen sulphide (H_2S). Water vapour (0.3%). biogas is about 20% lighter than air and has an ignition temperature in the range of 650 to 750°C. The components of biogas – methane and carbon dioxide- act as greenhouse gases that harm the environment if released unburned into the atmosphere. The production of biogas in biogas plants prevents uncontrolled emission of methane into the atmosphere and, by generating renewable energy in the form of biogas, reduces the use of fossil fuel. It is a colourless and odourless gas that burns with 60% efficiency in a conventional biogas stove the composition of biogas are shown by a table.

Methane	CH_4	50–75
Carbon dioxide	CO_2	25–50
Nitrogen	N_2	5–10
Hydrogen	H_2	0–1
Hydrogen sulphide	H_2S	1–2
Oxygen	O_2	0–0

Table No. 1(Composition of BioGas)

2. Benefits of Biogas

There are many benefits of biogas which are shown by figure:-

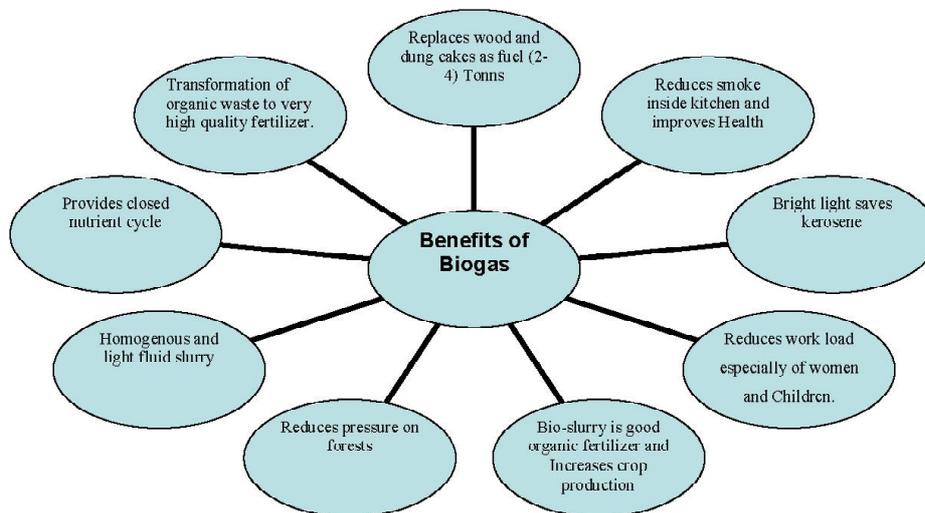


Fig No. 1(Benefits of Biogas)

3. Agricultural waste

Agriculture waste is an organic material and can be used to produce biogas through anaerobic digestion, thus providing an alternative for Agriculture waste use and mitigating the pollution. Agriculture waste is mainly composed of three groups of polymers, namely cellulose, hemicelluloses, and lignin. Cellulose and hemicelluloses are sugar rich fractions of interest for use in fermentation processes. against microbial attack and prevents the accessibility of enzymes to their substrate, hence making hydrolysis a rate limiting factor in anaerobic digestion of agriculture waste. there are some types of substratum which produced biogas yield.



Type of substratum	Biogas yield [m ³ /t]
beef slurry	25
swine slurry	36
dairy waste	55
cuttings from beet	75
dregs - remains in the manufacture of beer	75
thick excretions	80
green waste	110
Biowaste	120
fresh fat	400
old fat	800

Table No.2(Types of Substratum & Biogas Yield)

4. Anaerobic Digestion

Anaerobic digestion is the biological degradation by a complex microbial ecosystem of organic and occasionally inorganic substrates in the absence of an organic source. There are four metabolic stages involved in the production of methane using anaerobic digestion process. First, the particulate organic matters undergo hydrolysis by extra cellular enzymes to convert polymers into monomers. Organic acids, alcohols, hydrogen and carbon dioxide by acidogenic bacteria. Thirdly, the acetogenic bacteria convert the products of acidogens into acetic acid, hydrogen and carbon dioxide. Finally, methanogenic bacteria are responsible for methane production from acetogen products. The main advantage in using anaerobic digestion is the biogas production, which can be used for steam heating; cooking and generation of electricity. The effluent produced can be used as a biofertiliser or soil conditioner.. A major limitation of anaerobic digestion of vegetable wastes is the rapid acidification due to the lower pH of wastes and the larger production of volatile fatty acids (VFA), which reduce the methanogenic activity of the reactor. Preliminary treatment is required to minimize organic loading rate, hence aerobic processes are not preferred for vegetable wastes. The rate limiting step in vegetable wastes is by methanogenesis rather than by hydrolysis because methanogenic bacteria take long mass doubling time of 3-4 days in anaerobic reactors.

There are different types of reactors used for the Bio energy recovery from solid wastes and waste water. They include batch reactors, one stage reactors and two stage reactors.

5. Biomass Conversion Process

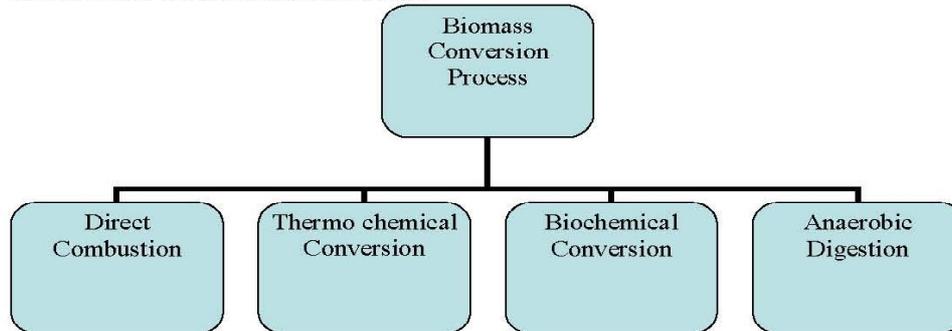


Fig No.3(Biomass Conversion Process)

5.1 Direct combustion

Process of burning in presence of oxygen to produce heat and by products is called combustion complete combustion to ashes is called is incineration. The process of combustion is applicable to solid, liquid and gaseous fuel. Such as wood dung, vegetable waste can be dried and burnt to provide heat or converted into low calorific value gas by “pyrolysis”

5.1.1 Pyrolysis process

In this process organic material to gases solid and liquids by heating to 500 °C to 900 °C in the absence of oxygen product of wood pyrolysis are methanol, charcoal and acidic acid all forms of organic materials including such as rubber and plastic can be converted to a fuel gas which contains CO ,CH₄, other hydrocarbons (C_nH_m) CO₂ and N₂.

5.2 Thermochemical conversion

Thermochemical conversion process converts the biomass and its residues to fuel,chemical and power using gasification and pyrolysis technologies .



5.3 Biochemical conversion

Biochemical conversion by micro-organisms converting biomass to bio fuels are slow processes taking place at low temp. The principal conversion process is fermentation. fermentation is a process of decomposition of organic matter by micro-organism. e.g- decomposition of sugar to form ethanol and carbon dioxide by yeast and ethanol forming acetic acid in making vinegar.

5.3.1 Gassification

Heating biomass with about one-third of the oxygen necessary for complete combustion produces a mixture of carbon dioxide and hydrogen known as syngas. Pyrolysis heating biomass in the absence of oxygen produce a liquid pyrolysis oil both syngas and pyrolysis oil can be used as fuels both can also be chemically converted to other valuable fuels and chemicals. , " Gobar Gas" mainly because cow dung has been the material for its production . It is not only the excreta of the cattle, but also the piggery waste as well as poultry droppings are very effectively used for biogas generation. A few other material through which biogas can be generated are algae, crop residues. Biogas is produced by digestion, pyrolysis or hydro gasification. Digestion is a biological process that occurs in the absence of oxygen and in the presence of anaerobic organisms at ambient pressures and temperatures of 35-70 C. The container in which this digestion takes place is known as the digester.

5.4 Anaerobic digestion.

Anaerobic digestion (AD) is a technology widely used for treatment of organic waste for biogas production. Biogas technology is concerned to micro organisms. These are living creatures which are microscopic in size and are invisible to unaided eyes. There are different types of micro

organisms. They are called bacteria, fungi, virus etc. Bacteria again can be classified into two types' beneficial bacteria and harmful bacteria. Bacteria can be divided into two major groups based on their oxygen requirement. Those which grow in presence of oxygen are called aerobic while the others grow in absence of gaseous oxygen are called anaerobic. When organic matter undergoes fermentation (process of chemical change in organic matter brought about by living organisms) through anaerobic digestion, gas is generated. This gas is known as bio-gas. Biogas is generated through fermentation or bio-digestion of various wastes by a variety of anaerobic and facultative-organisms. Facultative bacteria are capable of growing both in presence and absence of air or oxygen.

6. Steps in Biogas Production

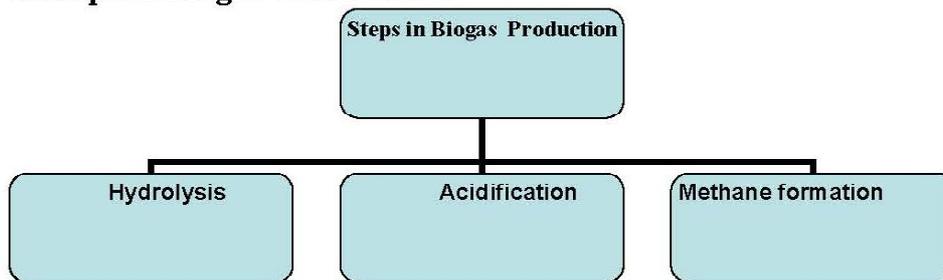


Fig No.4,(Steps in Biogas Production)

Biogas microbes consist of a large group of complex and differently acting microbe species, notable the methane-producing bacteria. The whole biogas-process can be divided into three steps: hydrolysis, acidification, and methane formation . in which process three types of bacteria are involved

6.1 Hydrolysis

In the first step (hydrolysis), the organic matter is enzymolyzed externally by extra cellular enzymes (cellulose, amylase, protease and lipase)



of microorganisms. Bacteria decompose the long chains of the complex carbohydrates, proteins and lipids into shorter parts. For example, polysaccharides are converted into monosaccharide. Proteins are split into peptides and amino acids.

6.2 Acidification

Acid-producing bacteria, involved in the second step, convert the intermediates of fermenting bacteria into acetic acid (CH_3COOH), hydrogen (H_2) and carbon dioxide (CO_2). These bacteria are facultatively anaerobic and can grow under acid conditions. To produce acetic acid, they need oxygen and carbon. For this, they use the oxygen solved in the solution or bounded-oxygen. Hereby, the acid-producing bacteria create an anaerobic condition which is essential for the methane producing microorganisms. Moreover, they reduce the compounds with a low molecular weight into alcohols, organic acids, amino acids, carbon dioxide, hydrogen sulphide and traces of methane. From a chemical standpoint, this process is partially endergonic (i.e. only possible with energy input), since bacteria alone are not capable of sustaining that type of reaction. Acid-producing bacteria, involved in the second step, convert the intermediates of fermenting bacteria into acetic acid (CH_3COOH), hydrogen (H_2) and carbon dioxide (CO_2). These bacteria are facultatively anaerobic and can grow under acid conditions. To produce acetic acid, they need oxygen and carbon. For this, they use the oxygen solved in the solution or bound oxygen. Hereby, the acid producing bacteria create an anaerobic condition which is essential for the methane producing microorganisms. Moreover, they reduce the compounds with a low molecular weight into alcohols, organic acids, amino acids, carbon dioxide, hydrogen sulphide and traces of methane.



6.3 Methane formation

Methane-producing bacteria, involved in the third step, decompose compounds with a low molecular weight. For example, they utilize hydrogen, carbon dioxide and acetic acid to form methane and carbon dioxide. Under natural conditions, methane producing microorganisms occur to the extent that anaerobic conditions are provided, e.g. under water (for example in marine sediments), in ruminant stomachs and in marshes.

They are obligatory anaerobic and very sensitive to environmental changes. In contrast to the acidogenic and acetogenic bacteria, the methanogenic bacteria belong to the archaeobacter genus, i.e. to a group of bacteria with a very heterogeneous morphology and a number of common biochemical and molecular-biological properties that distinguish them from all other bacterial genera. The main difference lies in the makeup of the bacteria's cell walls.

6.3.1 Symbiosis of bacteria

Methane and acid-producing bacteria act in a symbiotical way. On the one hand, acid producing bacteria create an atmosphere with ideal parameters for methane-producing bacteria (anaerobic conditions, compounds with a low molecular weight). On the other hand, methane-producing microorganisms use the intermediates of the acid producing bacteria. Without consuming them, toxic conditions for the acid-producing microorganisms would develop. In practical fermentation processes the metabolic actions of various bacteria all act in concert. No single bacteria is able to produce fermentation products alone.

7. Parameters and process optimization

Each of the various types of bacteria responsible for the three stages of the methanogenesis affected differently by the above parameters. Since

interactive effects between the various determining factors exist, no precise quantitative data on gas production as a function of the above factors are available. Thus, discussion of the various factors is limited to their qualitative effects on the process of fermentation.

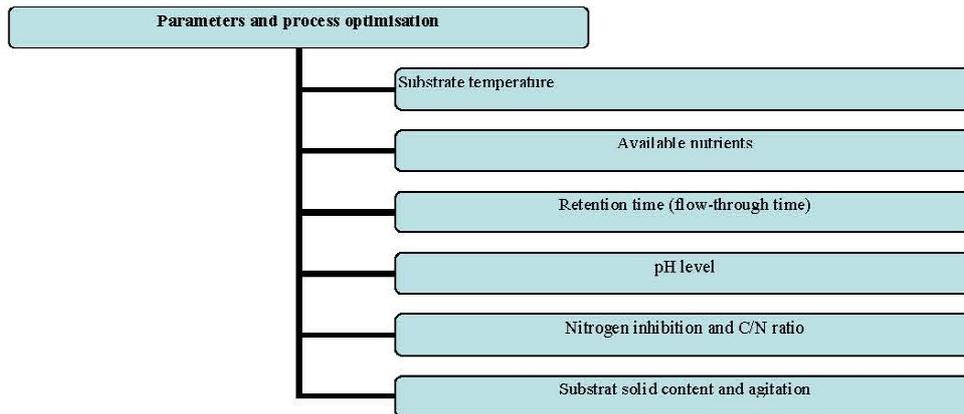


Fig No.6(Parameters &Process Optimisation)

8. Case study: fixed-dome type plant

A fixed-dome plant consists of a digester with a fixed, non-movable gas holder, which sits on top of the digester. When gas production starts, the slurry is displaced into the compensation tank. Gas pressure increases with the volume of gas stored and the height difference between the slurry level in the digester and the slurry level in the compensation tank. The costs of a fixed-dome biogas plant are relatively low. It is simple as no moving parts exist. There are also no rusting steel parts and hence a long life of the plant (20 years or more) can be expected.

The plant is constructed underground, protecting it from physical damage and saving space. While the underground digester is protected from low temperatures at night and during cold seasons, sunshine and warm seasons take longer to heat up the digester. No day/night fluctuations



of temperature in the digester positively influence the bacteriological processes. The construction of fixed dome plants is labor-intensive, thus creating local employment. Fixed-dome plants are not easy to build. They should only be built where construction can be supervised by experienced biogas technicians. Otherwise plants may not be gas-tight (porosity and cracks). The basic elements of a fixed dome plant (here the Nicarao Design) are shown in the figure below.

Conclusion

Biogas is a clean chepest source of energy for human beings. It is a alternate source of energy because it is a renewable source of energy. With the help of this paper we produced a methane gas .and agriculture Wastes includes all items that people no longer have any use for which they either intend to get rid of or have already discarded. Additionally, wastes are such items which people are require to discard.. They are a major contributor to greenhouse gas emissions and pollution of waters courses if not managed properly. Biowaste can be degraded anaerobically in a biogas digester to produce biogas and other gases. One excellent source of energy is Biogas. This is produced when bacteria decompose organic material such as garbage and sewage, especially in the absence of oxygen. Biogasis a mixture of about 60 percent methane and 40 percent Carbon dioxide. Methane is the main component of natural gas. It is relatively clean burning, colorless, and odorless. This gas can be captured and burned for cooking and heating. This is already being done on alarge scale in some countries of the world. Farms that produce a lot of manure, such as hog and dairy farms, can use biogas generators to produce methane.in village fields a huge amount of agriculture waste are found and farmers are not used these wastes.so to solve this problems we make a biogas plant and produce a gas.



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DIGITAL TECHNOLOGY IN INFORMATION USERS OF HIGHER EDUCATION IN KANCHIPURAM DISTRICTS

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INTRODUCTION

Knowledge is power and access to knowledge is the epitome of civilization. Communication of knowledge is a dynamic process. It is hidden and transmitted through information contained in documents that includes data, resources, records, related files, which ultimately takes the shape of competitive intelligence from a wide range of sources (D. Rajyalakshmi, 2007). This information is available in different forms and formats like books, magazines, journals, CD-ROM, Internet sources, online databases, microfilms and magnetic tapes.

Technologies affect and influenced the way we seek, locate, access and use information. Changes in technology in recent years have dramatically altered the manner in which information is accessed, stored and disseminated. The driving force behind this rapid growth of information is due to the impact of the Internet. "Although the Internet is the newest medium for the flow of information it is the fastest growing new medium for all times, becoming the information medium of first resort for its users." (A. C. Lynch & C. M. Preston, 1990). This observation is relevant to modern academic university libraries as they have to adapt to the growing



technology to enable potential users to access the required information and facilitate the most effective use of such resources.

A university library inevitably becomes an intellectual arena and a place for the generation and dissemination of an ocean of knowledge. It provides a world class of resources and services to its users. Previously the quality of a university library was judged on the basis of the size of its collections of books, journals and other materials. Now the emphasis has shifted to the networked information services provided through modern technologies like CD-ROM networks, Internet and consortia.

Emergence Of Information Technology (IT)

The information revolution of today is indisputably caused by the unprecedented advances in technology. Computers, Telecommunications, Micro graphics and Reprographics have emerged to give shape to the familiar phase known as —Information Technology. This advancement has made accessibility to world information and knowledge possible from any part of the globe. In other words, the increasing importance of information and the need for its users has resulted in the application of different technologies widely termed as information technologies.

Impact of Information Technologies on Libraries.

Recognizing the fact that the use of information technologies opened new avenues for better services in the new digital environment, libraries in higher educational institutions have adopted new technologies. Many organizations like IFLA, Global Libraries Initiatives, Technology and Social Change believe that the library and information technologies are at a point in their evolution where each is able to provide significant value to the other. Both share an interest in the use of technology to achieve their ultimate goals. (H. Billings,1996)



Impact of Information Technologies on Collection Management in University Libraries.

In the opinion of Varalakshmi (2004) IT enhanced the existing modes of communication for e.g. reduced the cost of production and increased the level of performance; provided additional alternative channels to communicate information; for Electronic resources. They facilitated to provide an entire new information communication channel that achieved direct interactive and informal means of communication, for Online Journals. Libraries with good stock of print documents and reading facilities are no more an attraction. The physical hard volumes of books and journals are slowly being replaced by electronic media like floppy discs, magnetic tapes, CD-ROMs and DVDs. The mode of presentation has changed from static text to graphic, hypertext, audio, video, and interactive multimedia. Many libraries are redefining their collection management policies to include digital collections through consortia models.

Review of literature

Gupta and Arora, (2002) made an attempt to focus the role of librarians in digital libraries. The objectives and characteristics of digital libraries were highlighted. In components of digital library, high speed LAN and connectivity to internet, RDBMS that supports variety of digital formats, search engines to indeed and provide access to resources and electronic document management were mentioned. The professionals 'attitude was not satisfactory towards information technology according to them. The copy right problem, political barriers, technical barriers etc. were discussed. Suggestions were given to library professionals to shift traditional librarianship to digital librarianship.



Harish Chandra (2002) stressed upon e-collection in libraries, their advantages and disadvantages and the role of librarian in e-collection, development. Various types of e-collection like E-books, E-Journals, etc. were listed. There is an urgent need to build e-collections to meet the growing information needs of the users. Therefore, a policy for development of e-collection is to be evolved. In this situation the traditional librarianship may have little significance and the professionals need to be trained with the latest developments taking place in information handling from time to time.

Hussan Nabi (2002) discussed CD-ROMs as a media for information packaging retrieval and dissemination. The use of CD-ROMs in libraries is highlighted. In advantages, high storage capacity, reliability, cost effectiveness, portability, ability to store graphic data and resource sharing were discussed. The problems of Indian Libraries particularly the financial crunch can be minimized by adopting CD-ROM Technology and networking according to them. So, professionals be imparted with the kind of training that is necessary to use CD-ROMs was stressed.

Objectives of the Study

The following are the main objectives of the present study:

- To understand the IT information technology and network infrastructure available in the higher education in kanchipuram districts.
- To understand the levels of knowledge and use of the library professionals on various aspects of IT like computer technology, network infrastructure, communication media technology, audio-video technology, printing and publication technology and electronic resources.



- To identify the training needs of these library professionals in the area of Information Technology
- To understand the opinion and attitude of library professionals towards IT and related aspects
- To examine the differentials in the opinions and attitudes of the library professionals with regard to some selected aspects of IT, by selected background variables

Hypotheses

The following are the hypotheses formulated in the present study:

- There are differences in the availability of IT information technology and network infrastructure in the higher education in kanchipuram districts.
- There are differences in the availability of IT information technology and network infrastructure in the NBA accredited and non-accredited higher education in kanchipuram districts.
- The attitude and opinion of the library professionals vary among the Indian continuum.
- The attitude and opinion of the library professionals vary with the library software.

Methodology

Data was collected using questionnaire, the covers faculty members and questionnaire distributed to faculty member's professional only. Total of 300 questionnaires distributed 250 respondents.

Data collection

The data have been collected through well structured questionnaire form the digital technology in information users of higher education in kanchipuram districts.



Limitation study

The study mainly applicable for digital technology in information users of higher education in kanchipuram districts.

Data and Analysis

1. Is the library a member of any of the following Indian consortia initiatives?

S.No	Indian consortia	Professor	Asso Professor	Asst. Professor	Total
1	UGC INFONET	15(21.42)	25(35.71)	30(42.85)	70(28.0)
2	INDEST	5(33.33)	5(33.33)	5(33.33)	15(6.0)
3	CERA	6(23.05)	10(38.46)	10(38.46)	26(10.4)
4	ICMR e-consortia	12(21.05)	20(35.08)	25(43.85)	57(22.8)
5	HELNET Consortium	7(31.81)	10(45.45)	5(22.72)	22(8.8)
6	IIM Consortium	10(16.66)	20(33.33)	30(50.0)	60(24.0)
	TOTAL	55(22.0)	90(36.0)	105(42.0)	250(100.0)

Table 1 shows that out of 250 respondents belonging to library in Indian consortia. 105(42.0) highly Asst professor are respondents, 90(36.0) Assoc professor are respondents Second Poisson from library in Indian consortia.55 (22.0) Professor Respondents third Poisson from library in Indian consortia.

From the data collected it is observed that as highly as 70(28.0) UGC INFONET is respondents from library in Indian consortia. 60(24.0) IIM Consortium respondents Second Poisson from library in Indian consortia.57 (22.8) ICMR e-consortia respondents third Poisson from library in Indian consortia.26 (10.4) CERA respondents fourth Poisson from library in Indian consortia.22 (8.8) HELNET Consortium respondents fifth Poisson from library in Indian consortia.15 (6.0) INDEST respondents sixth Poisson from library in Indian consortia.



2. Which scheme of classification is used?

S.NO	Classification	Professor	Asso Professor	Asst. Professor	Total
1	DDC	25(25.0)	35(35.0)	40(40.0)	100(40.0)
2	UDC	25(21.73)	40(34.78)	50(43.47)	115(46.0)
3	CC	5(14.28)	15(42.85)	15(42.85)	35(14.0)
	TOTAL	55(22.0)	90(36.0)	105(42.0)	250(100.0)

Table 2 shows that out of 250 respondents belonging to library scheme of classification. 105(42.0) highly Asst professor are respondents, 90(36.0) Assoc professor are respondents Second Poisson from library scheme of classification.55 (22.0) Professor Respondents third Poisson from library scheme of classification.

From the data collected it is observed that as highly as 115(46.0) UDC is respondents from library scheme of classification. 100 (40.0) DDC respondents Second Poisson from library scheme of classification.35 (14.0) CC respondents third Poisson from library scheme of classification.

3. Which software is used for inter library management?

S.NO	Library Software	Professor	Asso Professor	Asst. Professor	Total
1	WINSIS	5(16.66)	10(33.33)	15(50.0)	30(12.0)
2	LIBSYS	5(20.0)	10(40.0)	10(40.0)	25(10.0)
3	SOUL	10(22.22)	10(22.22)	25(55.55)	45(18.0)
4	SANJAI	5(20.0)	10(40.0)	10(40.0)	25(10.0)
5	CLMS	10(25.0)	20(50.0)	10(25.0)	40(16.0)
6	AUTOLIB	20(23.52)	30(35.29)	35(41.17)	85(34.0)
	TOTAL	55(22.0)	90(36.0)	105(42.0)	250(100.0)

Table 3 shows that out of 250 respondents belonging to library software. 105(42.0) highly Asst professor are respondents, 90(36.0) Assoc professor are respondents Second Poisson from the library software.55 (22.0) Professor Respondents third Poisson from the library software.

From the data collected it is observed that as highly as 85(34.0) AUTOLIB is respondents from the library software. 45(18.0) SOUL



respondents Second Poisson from the library software. 40(16.0) CLMS respondents third Poisson from the library software. 30(12.0) WINSIS respondents fourth Poisson from the library software. 25(10.0) LIBSYS and SANJAI respondents last Poisson from the library software.

4. How do you provide access to print resources?

S.NO	Print Resources	Professor	Asso Professor	Asst. Professor	Total
1	Library catalogue	10(25.0)	15(37.5)	15(37.5)	40(16.0)
2	OPAC	25(19.23)	45(34.61)	60(46.15)	130(52.0)
3	Web OPAC	20(25.0)	30(37.5)	30(37.5)	80(32.0)
	TOTAL	55(22.0)	90(36.0)	105(42.0)	250(100.0)

Table 4 shows that out of 250 respondents belonging to access to print resources. 105(42.0) highly Asst professor are respondents, 90(36.0) Assoc professor are respondents Second Poisson from the access to print resources.55 (22.0) Professor Respondents third Poisson from the access to print resources.

From the data collected it is observed that as highly as 130(52.0) OPAC is respondents from the access to print resources. 80(32.0) Web OPAC respondents Second Poisson from the access to print resources. 40(16.0) Library catalogue respondents third Poisson from the access to print resources.

FINDING

- Majority of highly as 70(28.0) UGC INFONET is respondents from library in Indian consortia. 60(24.0) IIM Consortium respondents Second Poisson from library in Indian consortia. 57 (22.8) ICMR e-consortia respondents third Poisson from library in Indian consortia.
- It is observed that as highly as 115(46.0) UDC is respondents from library scheme of classification. 100 (40.0) DDC respondents Second



Poisson from library scheme of classification.35 (14.0) CC respondents third Poisson from library scheme of classification.

- It is could be seen clearly from above discussion that as highly as 85(34.0) AUTOLIB is respondents from the library software. 45(18.0) SOUL respondents Second Poisson from the library software. 40(16.0) CLMS respondents third Poisson from the library software.
- It is could be seen clearly from above discussion as highly as 130(52.0) OPAC is respondents from the access to print resources.

Conclusion

In the electronic environment digital technology in information users of higher education in kanchipuram districts have built their library collections in print and electronic form. They have incorporated new web technologies that provide users better, dynamic, user friendly environment that is interactive and attractive with multimedia collections and services. Many university libraries are currently building substantial collections of full text journals in electronic format and continue to access various online databases. This created focused attention on functions of collection management in university libraries. In the changed information environment issues like planning, collection building, budgeting, organizing, processing, assessment, evaluation, access, licensing, digital preservation and dissemination of both print and electronic resources need to be discussed elaborately in collection development policy.

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RANGE ADJUSTMENT USING RECEIVED SIGNAL STRENGTH IN WIRELESS SENSOR NETWORKS

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1. INTRODUCTION

The Wireless Sensor Networks (WSN) has recently become a promising network architecture and is widely used in many applications, including environmental monitoring, object detection, event tracking, and security surveillance [1]. In general, WSNs consist of large numbers of tiny autonomous wireless devices, called sensor nodes, which perform multiple functions such as sensing, computing, and communication [2]. In typical WSNs, sensor nodes (i.e., source nodes) must report the sensing or monitoring data to a central node, called the sink, when receiving query messages sent by the sink. Because sensor nodes are battery-powered devices, charging batteries for sensor nodes is often difficult. Operations, such as sensing, communication, and computation, consume the energy of sensor nodes, and data transmission is the major source of energy consumption [3]. Thus, it is a serious challenge to design an energy efficient routing scheme for reporting sensory data to achieve a high delivery ratio and prolong the network lifetime.



2. LITERATURE REVIEW

Existing routing protocols for WSNs generally fall into three categories, they are chain-based, tree-based and cluster-based.

2.1 CHAIN-BASED

If a node that is the farthest from the sink becomes a leader, it uses more energy to transmit messages to the sink. Moreover, if the number of sensor nodes on the chain increases, the chain length also increases. The complication in the methods is Transmission delay and More Energy consumption.

2.2 TREE-BASED

The root node becomes a bottleneck for message reporting, thereby quickly exhausting its battery power. The difficulty in the methods is Transmission delay

2.3 ALTERNATIVE CONCEPT (CLUSTERING):

The alternative concept is clustering; in this approach it groups all sensor nodes into multiple clusters. In a cluster, one node is elected as the clusterhead, which controls and manages the cluster. Multiple clusters can be connected via gateways.

The main challenge of clustering is to select proper nodes to act as cluster heads and gateways. Previous researches have proposed many clusterhead election approaches for constructing clusters [3], [8], [10], [11].

2.4 TYPES OF CLUSTERING

The first type of clustering is active clustering; in this type each node locally exchanges messages with the nodes in its communication range (i.e., neighbors) to determine whether it should become a clusterhead.



Another type of clustering is passive clustering; this passive clustering considers three things. i.e., predicted transmission count, priority calculation and cluster state transition.

In Predicted Transmission Count, Link clustering considers node status and link condition, and proposes a metric, called the predicted transmission count (PTX). The PTX represents the capability of node for having the persistent transmission to the specific neighbor node. A large PTX value indicates more chance of becoming a CH or GW node.

When node s_i , receives report messages form s_j , it can use Eq. (3) to derive the PTX, q_{ij}

$$q_{ij} = \frac{E_i^{res}}{ETX_{ij} \cdot E^{tx}(k, d_{ij})} \quad (1)$$

where E_i^{res} is the residual energy of s_i , d_{ij} is the distance between s_i and s_j , and $E^{tx}(k, d_{ij})$ is the energy consumption for s_i to transmit a k -bit message over a distance d_{ij} .

In priority calculation the LCM evaluates the suitability of CH or GW candidates to determine proper participants to forward data packets. A CH candidate (CH_R node) or a GW candidate (GW_R node), s_i , performs the following steps to determine its priority.

Step 1: Calculate the PTX of each neighboring.

Step 2: Divide S_i^{nbr} into two subsets, $S_{sat}(i)$ and $S_{nsat}(i)$, where the PTXs of all elements in $S_{sat}(i)$ are greater than or equal to $Nreq$, and the PTXs of all elements in $S_{nsat}(i)$ are smaller than $Nreq$.



Step 3: If $S_{ent}(i) = \emptyset$, set ρ_i as the PTX of the node, which has the minimum PTX in $S_{ent}(i)$; otherwise, set ρ_i as the PTX of the node, which has the maximum PTX in $S_{ent}(i)$.

In cluster state transition upon receiving messages, a node uses above Algorithm to determine whether it must change its current state. For the lack of space, this paper uses the IN node as an example to explain the state transition of LCM. If the node becomes a CH or GW node, it then forwards the received message. Stumbling block in this approach are more energy consumption, less accuracy and high transmission delay.

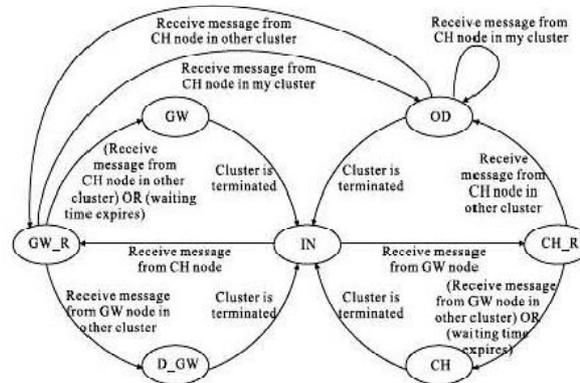


Figure 1: Cluster State Transition

3. PROPOSED METHOD

3.1 CONCEPT:

The Transmission Range of every node from the base station (Sink) can be adjusted using the RSS propagation models, with the goal of accuracy and self- adaptability of model.



Using RSS, the distance of each and every node from the base station can be found and the range can be adjusted according to the distance calculated.

3.2 PROPAGATION MODELS:

There are three types of RSS signal propagation model. The models are Free space model, 2-ray ground model and Log-normal shadowing model (LNSM).

3.3 PRINCIPLES OF RANGING:

The principle of RSSI ranging describes the relationship between the transmitted power and received power of wireless signals and the distance among nodes. P_r is the received power of wireless signals and P_t is the transmitted power of wireless signal. d is the distance between the sending nodes and receiving nodes. Transmission factor (n) depends on the propagation environment.

$$P_r = \frac{P_t}{d^n} \quad (2)$$

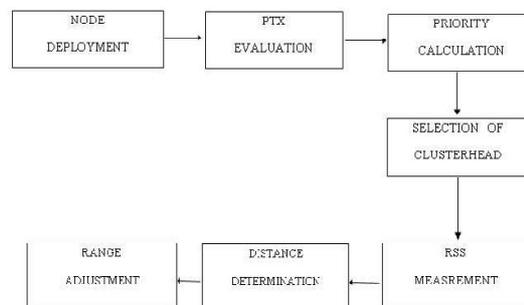


Figure 2: Block diagram of Proposed Method

3.4 MODULES OF PROPOSED MEHTOD:

The proposed methods are divided into different modules; they are Deployment of nodes in WSN, Passive Clustering (CH selection



using ETX and CH selection using PTX), Priority Calculation, RSS Measurement and Transmission Range Adjustment.

In Deployment of Nodes in WSN, WSNs consist of large numbers of tiny autonomous wireless devices, called sensor nodes, which perform multiple functions such as sensing, computing, and communication [2]. In typical WSNs, sensor nodes (i.e. source nodes) must report the sensing or monitoring data to a central node, called the sink.

In Passive Clustering Technique, the CH selection has done by using ETX and PTX methods. In ETX, ETX (Expected Transmission Count) is used to measure the expected bi-directional transmission count of a link. Let ETX_{ij} be the ETX of link ij , and therefore ETX_{ij} can be defined as

$$ETX_{ij} = \frac{1}{P_{ij}^f \cdot P_{ij}^r} \quad (3)$$

where P_{ij}^f and P_{ij}^r denote the forward and reverse delivery ratios from node si to node sj , respectively.

In the PTX, Each node in the LCM periodically broadcasts a message to obtain the distance, forward delivery ratio, and reverse delivery ratio of its neighbors, thereby making it possible to determine the ETX. When node si , receives report messages from sj , it can use Eq. (3) to derive the PTX, q_{ij} .

In the Priority Calculation, it is used to ensure that the high priority node becomes the CH or GW node, the Link clustering uses a random backoff approach to defer the transmission of data packets. Let T_i^w be the waiting period of candidate node s_i . Then, T_i^w can be obtained as



$$\mathbf{T}_i^w = \frac{t_{\text{slot}}}{P_i} \quad (4)$$

Where t_{slot} is the time slot unit, and rounds the value of x to the nearest integer less than or equal to x .

RSS Measurement is done by the two methods, i.e., free space model and surface bidirectional model. In free space model the transmission power of wireless signal is, the power of received signals of nodes located in the distance of d can be determined by the following formulas:

$$P_r(\text{dB}) = P_t G_t G_r \frac{1}{(4\pi)^2 d^2 L} \quad (5)$$

G_t and G_r are antenna gain, and L is system loss factor.

In the Surface Bidirectional Model the received power is determined by the following formulas:

$$P_r(\text{dB}) = P_t G_t G_r \frac{h_t h_r}{d^4} \quad (6)$$

where, h_t and h_r are antenna heights.

The distance or range can be calculated using the formula as,

$$\text{Distance (d)} = 10^{\frac{[P_{tx} - P_{rx} + G - 20 \cdot \log(c/4\pi f)]}{10n}} \quad (7)$$

Finally the Transmission Range Adjustment based on RSS measurement, the Transmission range of each and every node can be found and it is adjusted by means of increasing or decreasing the



voltage supplied to every node. Thus saving the energy by means of increasing or decreasing the voltage supplied to every node according to the distance from its neighbor.

The outperforms of the proposed method are better packet delivery ratio, better energy consumption, accuracy improvement and self-adaptability.

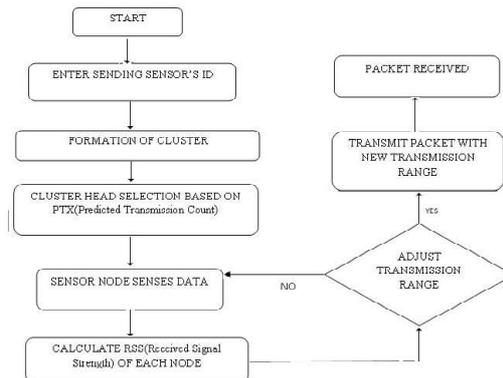


Figure 3: Simulation Flow Chart of TRAP

4. PERFORMANCE EVALUATION:

The performance of proposed method is evaluated by using the simulator tool Network Simulator-2 and Fedora-Linux. The evaluation result, i.e., the simulation parameters and values are tabulated in table: 1.

CHANNEL	WIRELESS
RUN TIME	30sec
COVERAGE AREA	600 m*600 m
PACKET SIZE	1024 bytes
SPEED	1 ms to 10 ms
PROTOCOL	AODV

Table 1: Simulation Parameters and Values

The Received Signal Strength is calculated by measuring the transmit and receive power of the antenna used, transmit and receive Gain the distance in meters and Signal Strength in dbm can be evaluated, the variation of RSS over distance has been observed (in Fig.4).

Fig. 5 compares the simulation results of message delivery ratios of the original LCM and LCM with TRAP (Transmission Range Adjustment Protocol)

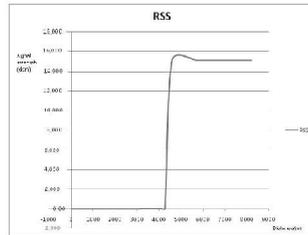


Figure 4: Variation of RSS

LCM with TRAP (red indicated line) having better packet delivery ratio than LCM (green indicated line). As no. of nodes increases packet delivery ratio decreases.

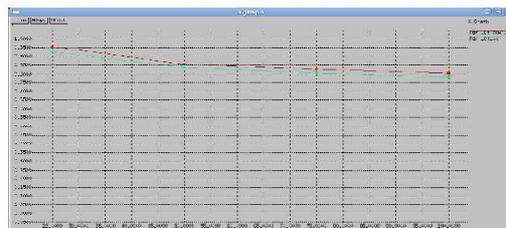


Figure 5: Message delivery ratios of LCM and LCM with TRAP for $N_{req}=5$

Fig. 6 provides a comparison of the energy consumption results of two clustering techniques under scenarios with different N_s and N_{req} . As N_s increases, LCM with TRAP consumes more Energy.

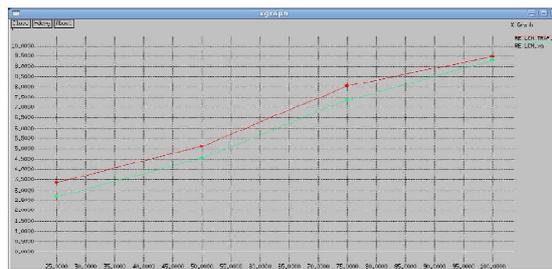


Figure 6: Residual energy of the LCM and LCM with TRAP for different numbers of sensor nodes $N_{req}=5$

Fig. 7 provides a comparison of throughput results of two clustering techniques under scenarios with different N_s and N_{req} . As N_s increases, LCM with TRAP has high throughput than the LCM

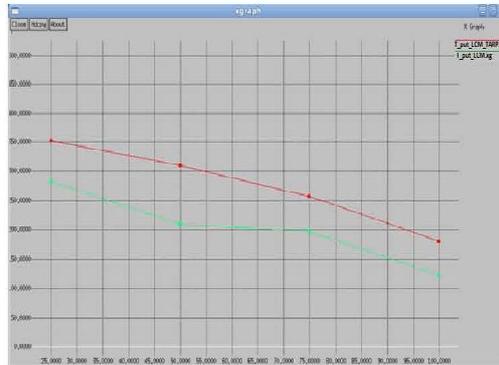


Figure 7: Throughput of the LCM and LCM with TRAP for different numbers of sensor nodes $N_{req} = 5$

5. RESULT AND DISCUSSION

The result of LCM with Transmission Range Adjustment Protocol (TRAP) is compared with LCM and PC protocols. The LCM with TRAP having better packet delivery ratio than LCM. i.e, the packet delivery ratio PC is 0.6971, the packet delivery ratio of LCM is 0.8363 and the packet delivery ratio of proposed LCM with TRAP is 0.8552. As no. of nodes increases packet delivery ratio decreases.

The throughput of PC protocol is 57.27, the throughput of LCM is 209.10 and the throughput of proposed LCM with TRAP protocol is 351.29.

The residual energy of node is compared for the three protocols, in this proposed LCM with TRAP protocol consumes minimum energy when limited number of nodes used. The comparisons of performance measures for three clustering techniques are tabulated in Table: 2.



Clustering Techniques	Packet Delivery Ratio	Residual Energy	Throughput
No of nodes	50	50	50
LCM-TRAP	0.8552	5.12683	351.29
LCM	0.8363	4.52689	209.10
PC	0.6971	0.30479	57.27

Table 2: Comparison of performance measures for three clustering techniques

6. CONCLUSION:

This paper has proposed a link-aware clustering mechanism with Transmission Range Adjustment Protocol called LCM-TRAP, to provide energy-efficient routing in wireless sensor networks. The key concept is to find the signal strength of every node and determines its distance from the specific neighborhood node. Thus by means of adjusting the power supply of each node based on its distance from the neighbor prevents the nodes to transmit with its full transmission range all the time, thus reducing the wastage of Energy leading to the extension of Network Lifetime.

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RTI IN CORRUPTION DRIVEN SYSTEM

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Until 2005, an ordinary citizen had no access to information held by a public authority. Even in matters affecting legal entitlements for such subsidized services as food for work, wage employment, basic education and health care, it was not easy to seek the details of decision making process that affected or harmed him. Without access to relevant information, it was not possible for a common man to participate in a meaningful debate on political and economic options or choices available to him for realizing socio-economic aspirations. The Constitution of India has guaranteed (u/s 19) the freedom of expression and speech. Even then a citizen had no legal right to know about the details of public policies and expenditures. And, therefore, it was not possible for a common man to observe and scrutinize the public actions with a view to provide feed back for rectifying the deficiencies in policy planning and the execution of programs.

Under the Official Secret Act, 1923, the entire development process has thus been shrouded in secrecy. The people who voted for the formation of democratically elected governments and contributed to the huge costs of financing public activities, had no legal rights to know as to: what process has been followed in designing the policies affecting them, how the programs have been implemented, who are the concerned officials associated with the decision making process and execution of the schemes and why the



promises made for delivery of essential services to the poor have not been fulfilled?.

The Right to information Act, 2005, which came into effect on 12 October, 2005 is one of the most significant legislations enacted by the Parliament of India. The Act enables the establishment of an unprecedented regime of right to information for the citizens of the country. It overrides the 'Official Secrets Act' and similar laws/rules. It strikes at the heart of the paradigm long practiced by Government officials and public functionaries that 'confidentiality is the rule and disclosure is an exception'. The Act seeks to establish that "transparency is the norm and secrecy is an exception" in the working of every public authority. It aims to ensure maximum openness and transparency in the machinery and functioning of Government at all levels: Central, State and Local. The right to information is expected to lead to an informed citizenry and transparency of information which are vital to the functioning of a democracy. It will contain corruption and enable holding Governments and their instrumentalities accountable to the governed. The 'People's Right to Know' has a long history of prolonged debates, deliberations, discussions, struggles and movements at both national and international levels.

The fundamental values associated with the concept of freedom of expression and right to information in a democratic society, are widely acclaimed internationally as follows:

- (1) Freedom of expression is essential to the development of an individual's personality. The "Right to Express" and to communicate is central to self development and realization of one's potentiality as a human being. Any restriction on expression of opinion or access to information can adversely affect individual dignity, integrity and growth.



- (2) If development is to be realized, people need the freedom to participate in public life with full information as “informed” citizens, exercise their “right to say”, put forth their views, and demand, without fear of discrimination, that their Governments uphold their obligations and deliver.
- (3) Knowledge is power and freedom of information is vital to the advancement of knowledge society. Enlightened judgment is possible only if one is provided with opportunity to consider all facts and ideas, from whatever source, and to test one’s conclusion against opposing views.
- (4) Sustained human development requires that the people, especially the poor have the “right to know” and are provided with access to relevant information, including that relating to the conservation of the environment so that they can take their own “informed” decisions and realise their right to development.
- (5) Free flow of information promotes accountability and transparency, prevents corruption, and strengthens the capacity of community groups and civil society organizations to participate in decision-making. The right to freedom of information is crucial not only in determining policy but also in checking the Government in its implementation of policy.
- (6) The lack of access to information on Government policies, programmes, schemes, benefits and deliveries makes corrupt practices thrive. When corruption siphons off amounts from employment guarantee, unemployment or disability benefit, misdirects public funds for service delivery or delays pension and social security payments, it is usually the poor who suffer the most. Freedom of information can be a potent

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tool to prevent and fight corruption, i.e. the abuse of public power for private gains.

- (7) Freedom of information is a necessary part of our democratic polity. All power in a democracy belongs to the people who are the masters and the Government is their servant. If the people are to perform their sovereign role and instruct their Government, they must have access to all information, ideas, and points of view. Thus, democracy must extend beyond the ballot box and be deepened through "social citizenship" and "citizen governance".
- (8) Freedom of information is vital to the process of peaceful social change. It allows ideas to be tested in advance before action is taken, it legitimizes the decision reached, and it permits adaptation to new conditions without the use of force or violence. Realising the importance of the freedom of speech and expression including the freedom to receive and impart information, many countries – Sweden, the United States of America, Finland, the Netherlands, Australia, Canada, the United Kingdom, Japan, South Korea, Jamaica, Israel, South Africa, Thailand, India etc. – have enacted Freedom of/Right to Information Acts. The objective behind these enactments is to ensure that governmental activity is transparent, fair and open. Most enactments are based on the paradigm that except in matters of defence, atomic energy and matters concerning the security of a country, there is no room for secrecy in the affairs of the Government. Whether it is a matter of taking a decision affecting the people or whether it is a transaction involving purchase or sale of government property or whether the matter relates to entering into contracts - in all these matters, the Government should act in a transparent manner.

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This means that every citizen who wishes to obtain any information with respect to any of those matters should be entitled to receive it.

RTI: A Response to Paradigm Shift in Development Approach

Of the major forces which have, of late, led to a re-thinking on issues that affect economic development, at least three of them are most important. These are:

- (i) Sharing of knowledge and communication strategies for dissemination of information;
- (ii) Involvement of NGOs in designing of policies and implementation of schemes; and
- (iii) Adoption of citizen centric approach to development.

Democratization of information and knowledge

Information and knowledge are critical for realizing all the human aspirations, such as, improvement in quality of life. In the knowledge society, in which we live today, acquisition of information and knowledge and its application have intense and pervasive impact on productivity gains. People who have access to information and who understand how to make use of the acquired information in the processes of exercising their political, economic and legal rights become empowered, which, in turn, enable them to build their strengths and assets. In view of this, almost every society has made endeavors for democratizing knowledge resources by way of putting in place the mechanisms for free flow of information and ideas so that people can access them without asking for it. They are thus empowered to make proper choices for participation in development process. The efforts made thus far to disseminate information and knowledge through the use of communication technologies such as radio and television, have yielded



positive results. Sharing of information, for instance, about the new techniques of farming, health care facilities, hazards of environmental degradation, opportunities for learning and earning, legal remedies for combating gender biases, etc., have, overtime, made significant contributions to the well being of poor people. Every individual or section of the society, whether working in farm, industrial or services sectors, requires a wide range of information to be able to effectively function in the knowledge and technology driven economy. Democratisation of information and knowledge, by way of creating conditions for sharing among the people, who are partners in development, is critical to the task of equalising opportunities for development. In view of this, the RTI seeks to set up the facilitation process for free flow of information, which forms the basis for a healthy debate on issues of vital importance to every section of the society.

Increasing demand by NGOs for participation in development activities.

In the backdrop of inefficient implementation of development programmes, the NGOs/self-help groups have demanded at various fora, for creating conditions for democratic governance. It has been alleged, and that not without a basis, that the implementing agencies have frequently indulged in corrupt practices leading to diversion of resources from public use to private purposes. And, that the entitlements of the poor have not been assured, mainly in respects of food grains, jobs, health care facilities, basic education, etc. Poverty of all forms has thus been perpetuated, which is a major drag on the overall development of the country.



There are umpteen numbers of cases which demonstrate that the role of NGOs in exposing corruption and in providing necessary feed back for designing policies and effective implementation of the programmes has been commendable. For instance, NGOs have exposed the inclusion of fictitious names in the list of beneficiaries, under the schemes like subsidized food grains, employment guarantee scheme for poor, domestic gas (LPG), medicines, reservation of seats in private schools for the children from the poor families, etc. Prior to the implementation of RTI Act 2005, at least eight Indian States had enacted the laws on freedom of information since 1997. People, in these states took recourse to the various provisions of transparency norms to obtain information held by the public bodies. The NGOs also conducted social audits of the schemes, particularly the poverty alleviation programmes, the outcomes of which have resulted in appropriate reforms in governance of the projects. This forms the basis for replicating these experiences throughout the country. In view of commendable contributions of NGOs in carrying out the programmes in partnership with the public bodies, the RTI Act has envisaged for providing a framework for promoting interface between the citizens and the Government, such that informed decisions could be taken at all levels by the functionaries of the governments. And, the projects should be executed under the sunshine to allow for reasonable scrutiny by the citizens.

Citizen-Centric Approach to Development

An equally important concern of the development planners has been to evolve Citizen Centric Approach to development, as people live in diverse socioeconomic and geographic conditions. The approach to fit for all sizes, particularly in respect of poverty alleviation programmes, has failed. Without obtaining necessary feedback from the people about their socio-economic aspirations and the manner in which the accepted goals are to



be realized, it is not possible to design and implement schemes that may eradicate poverty and liquidate illiteracy. The RTI therefore empowers every citizen to take charge of his life and make proper choices, on the basis of freely available information and knowledge, for effective participation in political and economic processes or activities. Briefly, RTI has been implemented in response to the major challenges of development, mainly the urgency for democratisation of information and knowledge which are vital for equalizing opportunity for development, increasing NGOs participation in decision making and democratic governance and for evolving citizen-centric approaches for addressing the concerns of every member of the society. In the following paragraphs, an attempt is made to present the salient features of the Act and to examine the extent to which the stated objectives of the RTI Act are realized.

Evidently, the major objectives of the Act are:

- i) Greater Transparency in functioning of public authorities.
- ii) Improvement in accountability and performance of the Government.
- iii) Promotion of partnership between citizens and the Government in decision making process; and
- iv) Reduction in corruption in the Government departments

Future of RTI: Tasks Ahead

A major challenge is to develop capacities for access to information. The capacities of both the public authorities (i.e. the duty – bearers) and the citizens (i.e. the claim holders) may have to be enhanced, for which a two pronged strategy would be needed.

First, a comprehensive information management system (IMS) should be developed by each public authority for storage and retrieval of data and



information that may be shared with anyone who seeks to inspect and use the information for development purposes. Not only the institutional capacity but also the individuals associated with various public activities should also be trained and equipped with facilities to cope with the demand for sharing of information. **Second**, in order to properly manage the demand for information from the NGOs, in general, and the citizens, in particular, a concerted effort would be needed to create mass awareness among the people to promote information literacy. A multimedia approach should be adopted to educate and train people as to how to decide and select what information should be sought for and that from where and how? Besides, they should be educated as to how to make best use of information for effective participation in economic and political processes. This alone can ensure cost-effective use of the provisions of the RTI Act.

Right to Information Act provides a broad framework for Government and Citizens' interface to design and monitor relevant projects, contain corruption, ensure accountability and to mutually share the responsibility for development. Under the Act, the public authorities are required to adopt open and transparent procedures and methods of delivery of services. They ought to reveal what they do, how they do and what are the outcomes of the policies, programmes and public expenditures. In a democratic society, the citizen, NGOs and media have the right to know as to how they are governed and they also have right to exercise their options to indicate how they ought to be governed and served by the Government. It is important, therefore, to ensure the following:

Proactive and Suo motu Disclosure of Information

Under Section 4 of the Act, all the 'Public Authorities' are required to make proactive disclosure of information. Almost entire gamut of their



activities and the manner in which they are executed are to be disclosed. The issue is how to present and capture the relevant information that can be of use to the stakeholders for realizing their rights. The computerization of records and use of IT resources to ensure transparency in functioning of different departments should be accorded high priority. The information should be disclosed on suo motu basis so that a citizen does not have to resort to the provisions of the RTI Act. Almost all the Ministries/ Departments have put up information on their websites, which needs to be examined to assess the adequacy of their details for analysis and use of information.

Promote Information Literacy

The Act empowers every citizen to seek information and to gain ideas and acquire new knowledge to improve quality of life as well as to participate in the effective governance of public authorities. The issue is how to promote information literacy among people to enable them to decide what to ask for, how to ask and how to make good use of information, so that they can effectively participate in the process of development, including control of corruption. The issue of promotion of information literacy among both educated and not so well educated citizens is critical, because the people and the government functionaries share the responsibility of expediting the process of development. Accordingly, under Section 26 of the Act, provisions have been made for advancement of understanding of the public through education and training programmes. A multimedia strategy for promotion of information literacy should be designed by all the public authorities, including educational institutions, in collaboration with media agencies so as to ensure greater interface between the stakeholders. The task is challenging, as less than 10 per cent of the poor have some awareness about the law on RTI and the manner in which it



could be used by them to claim for their entitlements. The potential of IT resources and widespread educational institutions of all types and levels should be exploited to promote information literacy.

Concluding Remarks

RTI has significant bearing on good governance and development. India's economy in the last three years has grown at unprecedented high rate of 8 – 9 per cent per annum, which also co-incides with the RTI induced good governance, as discussed above. The implementation of the law on right to know for setting up information regime therefore augurs well for strengthening the knowledge society as well as for increasing the accountability of public bodies. The trend in improvement in delivery of services, due to the perceived good governance, provides sufficient indication for alleviation of poverty and liquidation of illiteracy in a much shorter duration than envisaged for the realization of Millennium Development Goals (MDGs). RTI has enabled people to participate in the process of development, which has resulted in reduction of corruption. It has just begun to happen for the first time for establishing an open and participatory governance system that protects and promotes the socio-economic interests of every citizen, particularly the poor, who are receiving the benefits of development as per their entitlements.

As the functioning of public authorities becomes more transparent and ensure proactive disclosure of the policies, programmes and their outcomes, there would be greater participation by people in every sphere of development. It is important therefore to enhance the capacity of public authorities as well as the citizens to develop awareness and understanding of information, to make its effective use for the benefits of citizens. In effect, endeavours should be made to increase the effective demand for



improvement in delivery of services. Only about 10 per cent of over 300 million population of the poor are aware of the RTI, as a tool for reaping the benefits of assured entitlements. It, therefore, calls for making concerted efforts by the Government, NGOs and media for creating mass awareness among the people, particularly to educate them, as to how to seek information and how to make the best use of such acquisitions of wealth of knowledge in every day's life. The role of NGOs is critical in respect of both to constantly exert pressure for maximum disclosure of information relating to public activities and to participate in designing and implementation of socio-economic programmes. The task is challenging but easy to cope with provided of course mass media like radio and TV channels are utilized to reach the target population. In view of diversity of situations in which people live in different parts of the country, a multimedia approach should be adopted to promote information literacy and to democratize knowledge, which, in turn, are vital for people's empowerment, ensuring the reach of entitlements to the beneficiary groups and for equalizing opportunities for sharing the benefits of development.

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KUSHANA INSCRIPTIONS AND HISTORY: A NEW PERSPECTIVE

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The greatest testimony of Kushana power in India is in the form of abundant Kushana coins and a large number of inscriptions which are retrieved from all quarters of their empire. As written records either by the Kushanas themselves or about them, are exceedingly scarce, reconstruction of their history is primarily based on a meticulous study of their coinage & inscriptions. Kushanas inscriptions provide an almost unparalleled series of historical documentation that help us in gleaning various aspects of polity, society and economy under the Kushana rule.

The recovery of hundreds of Kushana inscriptions from a very large mass of land extending from Airtam (18km east of Termez) in Uzbekistan to Ganwaria in eastern Uttar Pradesh, attests to the vast dimensions of the Kushana empire. The findspots of inscriptions by far is the most reliable evidence for the reconstruction of the political boundaries of Kushana empire under individual rulers. They along with coinage are also the most useful tool for the reconstruction of genealogy and chronology of Kushanas. The Rabatak inscription of year one (1) of Kanishka is indispensable in this regard. This inscription in Bactrian language and Greek script was found in 1993 at a site known as Kafir's castle at Rabatak near Pul-i-Kumri in north Afghanistan. In this 23 line inscription dated in the year 1 of Kanishka era, and read by Nicholas Sims-Williams,¹ lines 12 to 14, refer to king Kujula Kadphises as the great grandfather, king Oemo-Takto, i.e. Wema



Takto as the grandfather and king Ooemo Kadphises, i.e. Wema Kadphises as the father of Kanishka-I. Thus a hitherto unknown Ooemo-Takto figures in the genealogy of Kushanas as the son of Kujula Kadphises and the father of Wema Kadphises. B.N. Mukherjee, however, argues that the correct reading of this new name is Saddaskana (Sadashkana), who was a son of Kujula Kadphises. Since there is no coin convincingly attributable to Ooemo Takto, it appears that he probably served as a junior co-ruler to his father Kujula Kadphises and predeceased him.² One of the most forceful statements being made in the Rabatak inscription, on behalf of Kanishka is the claim that he ruled India as far as Kausambi, Shri Champa, Pataliputra and beyond. The inscription states that in the first year of his reckoning it is proclaimed in India and, in fact in all the satrapies and especially in the cities of *Koonadeano* (Kaundinya), *Ozeno* (Ujjain), *Zageda* (Saketa near Ayodhya), *Kwzambo* (Kausambi), *Palabotro* (Pataliputra) and *Shri Champa* (Bhagalpur) that all rulers and important persons had submitted to Kanishka's will and he had submitted all India to his will.³ Thus, in the very first year of his reign Kanishka-I, it seems, extended the limits of the Kushana empire upto Pataliputra and Champa, i.e. eastern border of the present territory of Bihar. Kaundinya or Kundina has been identified with Kaundinyapura on the Wardha river in the Amaravati district of Maharashtra.⁴ But going by the numismatic and archaeological evidence Ujjain may have marked the southern border of the empire.

Apart from the inscriptions issued by royalty, the private records of common men help us to understand various aspects of society and religion. These inscriptions are either undated or dated. In case of undated epigraphs we depend on the palaeographic evidence for dating, which is not always exact. But the dated inscriptions of Kushanas, especially those dated in the Kanishka era, ranging from Year 1 to 98, are invaluable for the study



of Kushana history and society. According to the “dropped hundred” theory of Von Lohuizen, the inscriptions dropped 100 and started recounting after the year 100 of Kanishka, thus adding another 60 years to Kushana rule.⁵ The inscriptions found in/at different places in different regions have used different local languages, i.e. standard Sanskrit, hybrid Sanskrit, Prakrit, Gandhari Prakrit, etc. but are mainly written in two scripts – Kharoshthi and Brahmi, although Sogdian, Bactrian and Greek alphabets are also used. The writer of inscriptions called a *lipika*, first composed the text, then a stone engraver or a *tankaka* followed the form and shape of each letter fashioned by the lipika and engraved them on stone.⁶

The Kushana epigraphs are mostly short private records commemorating the actions of a particular patron. These inscriptions are generally records of religious donations and/or dedications by private individuals like merchants, bankers, caravan leaders, officials, housewives, professionals, lay worshippers, monks, nuns, etc. Statues of Buddhas, Bodhisattvas, Jinas, sealings, stone slabs, etc. were installed, viharas, stupas, temples, devakulas, tanks, wells, etc. were constructed and repaired, endowments were made for pious purposes, by people from all walks of life. Alongwith the acts of merit, these epigraphs mostly record the names of the donors, their relations, place of origin, professions and even the name of the monks or nuns who inspired them for the donation. The name of the reigning Kushana ruler figures prominently in a large number of records. The donors knew the name of the reigning monarch and sometimes an administrative head was also associated with these records of gifts and dedications. Imperial titles like *Maharaja*, *Rajatiraja*, *Devaputra*, *Shahi* and rarely, *Kaisara* are invariably associated with the names of the reigning Kushana monarchs even in private records which very often correspond to the titles used on Kushana coins. The subjects expressed allegiance to the



king and made religious gifts for the spiritual benefit of not only self and family members but mostly wished for the welfare of all beings and some times also for the health, happiness and prosperity of the reigning monarch. This reflects the idea that merit need not be individually earned but can be transferred from one person to another and this sentiment finds an expression in Buddhist, Jain and other donative records as well. Indeed, the acquisition of merit may have been a major goal of the patrons and donors who were responsible for the creation of works of art. We learn about the titles of various officials and at times their names like *Kshatrapa*, *Mahakshatrapa*, *Dandanayaka*, *Mahadandanayaka*, *Padrapala*, *Lipika*, *Divira* (scribe), *Gramika* (village head man), *Navakarmika*, (superintendent of work), *Viharakaravhaena* (architect of viharas), etc. through these engraved details which throw light on the administrative set up under the Kushana.

The nature and scope of Kushana inscriptions can be gleaned from a few examples only. The **Taxila silver scroll inscription** of the year 136 of an unidentified era refers to the establishment of the relics of Buddha in the Dhramarajika Stupa of Taxila by a Bactrian named Urasaka, a resident of the city of Navachala, for the bestowal of health on an unnamed Kushana King, *Maharaja Rajatiraja Devaputra*.⁷ The **Peshawar Casket inscription** of year 1 of Kanishka⁸ records the religious gift of slave Agishala who was the *navakarmika* in Kanishka's Vihara, in *Mahasena Sangharama* in the acceptance of the *sarvastivadin* teacher. The **Sarnath Boddhisattva inscription** of the years 3 of Maharaja Kanishka records the dedication of the Bodhisattva statue and an umbrella with a post by Friar Bala along with *Mahakshatrapa* Kharapallana and *Kshatrapa* Vanaspara of Benares.⁹ The **Mathura Stone inscription** of year 28 of Kanishka era records a perpetual endowment of five hundred and fifty



(550) puranas in each of the two guilds of *Samitakara* and *Raka* for feeding a hundred Brahmins in the *punyashala* by lord of Bakan and Kharasalera in order that the merit might accrue to *Devaputra Shahi* Huvishka.¹⁰ The **Mat inscription** of the time of Huvishka records the repair of tank and a *devakula* by a Bakanpati, son of *Mahadandanayaka* for the life and prosperity of *Maharaja Rajatiraja Devaputra* Huvishka.¹¹ The **Mathura Jain Image inscription** of the year 40 records the dedication of the image by mother of Simhadatta, wife of the *Gramika* Jayanaga and daughter-in-law of the *Gramika* Jayadeva out of the *Varana Gana, Arya-Hatikiya Kula, Vajrinagri Shakha*.¹²

The economic vibrancy, devotion and religious character of the society under the Kushanas can be gleaned from these inscriptions. Subtle details of the society like the names of the donors, their pedigree, their *Gana, Kula, Shakha*, etc. are engraved in stone and handed over to posterity. These men are identified by their profession, their place of origin, official titles, etc. The *Kottiya-gana* and *ucchenagari Shakha* seems to be in the forefront in making donations at Kankali tila in Mathura. Various professional groups are mentioned in these epigraphs like *Lohakara* (ironsmith), *Sarthavaha* (caravan-leader), *Gandhika* (perfume merchant), *Suwarnakara* (goldsmith), *Vadhaki* (carpenter), *Vanik* (merchant), *Vyavahari* (trader or a magistrate), *Pravarika* (cloak maker), *Manikara* (jeweller), *Rajaka* (washerman), *Divira* (scribe), *Shreshthi* (foreman of a merchant guild), *Kutumbika* (agricultural householder), *Halikaya* (agriculturist), dance troupes, actors, sculptors, etc. These attest to the flourishing condition of trade and industry during Kushana times. At least some individuals in these social classes were rich enough to make magnificent donations. The **Mathura Stone inscription** of year 28 also mentions two *Shrenis* (guilds) of *Samitakara* (flourmaker) and *Raka*



attesting to the existence of guilds of traders which must have accelerated the growth of craft and industries. While the statues of royal personages immortalized them in stone, these donors of various social and professional groups, perpetuated their names by engraving their acts of merit in these inscriptions.

These epigraphs even refer to various monks and nuns by name and their teachers, who not only made costly donations themselves but also inspired lay-worshippers and professionals for various acts of merit. It seems that some monks and nuns did possess or retain some wealth, which was utilized by them for religious donations. Bhikshu Bala and his disciple Bikshuni Buddhmitra were possibly the most famous donors who erected Bodhisattva images at Kausambi, Sarnath and Sravasti. A few Inscribed Gold Bars from Dalverzin-tepe, datable to the Kushana age, bear Kharoshthi inscriptions referring to these as owned by or donated by monks of Kalana (Kalyan).¹³ Several records refer to the donations having been made by lay-disciples at the request of venerable persons of religious orders which tempts us to suggest that some of the donations given by monks or nuns could have been made out of the amount collected from their rich patrons.¹⁴

As many of these inscriptions were commissioned by women, they also throw valuable light on some aspects of the lives of women in Kushana times. While no royal women finds mention in these inscriptions, most donations were made by urban women of fairly wealthy classes. They were mothers, wives and daughters of affluent men of various professions. In stark contrast with men whose professions are usually mentioned in the inscriptions, these women are described by their familial relations, mostly husband, father, father-in-law or son. They are thus, constantly identified in terms of their relations with men and yet are disposing a large amount



of income, in the form of religious donations, which they do not seem to have earned themselves. It seems that these rich women otherwise played a restricted role in the public sphere but religion provided them with an opportunity to exercise their own authority. Apart from these wealthy women, nuns are frequently mentioned in inscriptions as making donations and instigating donations. Women who followed a religious vocation are identified by their sect and their teachers. The inscriptions show that nuns played a vital role in attracting donations from secular figures. Buddhist nun, Buddhmitra was well-versed in tripitika and was trained by monk Bala of the Sarvastivadin sect. She installed a colossal Bodhisattva image at Kausambi (Accession no. 2948, Municipal Museum, Allahabad) in the year 2 of Kanishka era and along with monk Bala also donated other Bodhisattva stone images at Sarnath (year 3 of Kanishka era) and Sravasti. Another nun Dhanavati, the daughter of Buddhmitra's sister, installed a Bodhisattva image with an inscription in honour of Buddhmitra at Mathura in the year 33 of Kanishka era. Thus, while the normative text of this period relegate women to purely domestic roles, these inscriptions show that at least in the religious sphere, women had an opportunity to negotiate new roles and carve out new boundaries. They could assert their own authority in the society by gaining control, as patrons of different sects and also by proving their worth in attracting patronage of other women.

Numerous viharas, stupas, chaityas, temples, kutis, etc find mention in these epigraphic records which reflects on the vibrant religious life of the people of Kushana age. More than eighteen viharas and monasteries are mentioned in these inscriptions.¹⁵ These epigraphs perpetuate the names and deeds of monks and nuns as well as common men and women of various vocations and social classes on the statues of gods of different sects, i.e.



Buddha, Bodhisattvas, Maitreya, Jinas, Karttikeya, Shivalingas, Kubera, Nagas, etc. In the devakulas of Mat and Surkh Kotal even the Kushana kings were immortalized in stone. Apart from being exquisite works of art these images remind us of the spirit of co-existence and catholicism that existed during the rule of the Kushanas. It seems that the common man had the liberty to practice, follow and patronized any religious sect of his choice without royal intervention. Jaina inscriptions far outnumber the Buddhist ones at Mathura. Several images of Naga deities datable to Kushana age, with or without inscriptions are found in Mathura attesting to the worship of serpents in north India. The **British Museum inscription** of year 10 of Kanishka records the gift of a temple for Naga worship in the northern Navamika (?).¹⁶ Brahmanical faith also flourished during the rule of Kushanas, which is attested to by numerous sculptures of Hindu gods and goddesses in Mathura school of art. Sculptures of both Gandhara and Mathura school of art represented Buddhist, Brahmanical and Jaina deities. The **Mathura Yupa inscription** of the year 24 refers to the setting up of the sacrificial post and performance of sacrificial rites by Dronala, a Chandiyogya Brahmin of the Bharadwaja gotra.¹⁷ The **Panjtar Stone inscription** records the construction of a temple of lord Shiva in the eastern part of the territory of Kasua by Moika, son of Urumaja.¹⁸ An image of Karttikeya was set up in the year 11 of Kanishka by brothers Visvadeva, Visvasoma, Visvabhava and Visvavasi, the sons of Vishvila, who were Kshatriyas.¹⁹ The **Surkh-Kotal inscription** of year 31 of Kanishka mentions the repair of a temple called 'Kanishko Oaninda Bago Laggo' which appears to have been both a fire temple and a dynastic sanctuary.²⁰ The **Rabtak inscription** of year 1 of Kanishka era records the command of Kanishka to construct a sanctuary of Nana in the plains of Kaeypa for deities Shri, Pharro and Ommo.²¹ The **Rawal inscription**, is a clumsy



copy of the **Shakaradarra inscription** recording the excavation of a well in the year 40 of the Kanishka era. According to S. Konow it brings out the belief of the people that the inherent magical or spiritual power of an inscription could be recreated by its duplication.²² Thus these inscriptions truly represent the multi-religious society of the Kushana age and its effervescence.

In the upper regions of Pakistan and 'Pakistan occupied Kashmir', three areas—Alam Bridge, Chillas and Hunza, have a huge concentration of graffiti and thousands of short inscriptions on rocks, which are mostly scriblings recording the name of the visitors of different sites or those whose names the visitors wanted to commemorate.²³ Though rarely, they sometimes refer to the ruling king or a Shatrap and occasionally to a date. Nearly two hundred short Kharoshthi inscriptions have been dated to about the first to third century A.D.²⁴ which coincides with the Kushana rule. Some Brahmi inscriptions belonging to the later Kushana period have been identified as well. Most of the Kharoshthi inscriptions of Chillas II, studied by G. Fussman render proper names without titles. Some of the names like Buddharakshita, Buddha Gupta, Rahula, etc are Buddhist but a 'Shivadasa' i.e. slave of Shiva and Samudra Rama Krishna are also mentioned. We find etchings of deities like Balarama, Samkarshana, Vasudeva/Krishna and most probably Hariti apart from Buddhist iconography.²⁵ Since the 1st century A.D., this route was used by merchants, Buddhist missionaries, pilgrims and political envoys of the Kushanas who travelled between Kashmir and the Tarim Basin. Using another access, traders from the lowlands reached Chillas and founded a Buddhist sanctuary there.²⁶ The inscriptions of the rocks of Hunza have been edited by A.H Dani and according to him, they refer to Kushana kings. The inscription HK-1 refers to 'Vima Kadhataprisa' in Kharoshthi characters,



who could possibly be Wema Kadphises.²⁷ A male figure, in the well-known Yueh-Chih dress, is engraved near this inscription on the Hunza rock number 1. The dated graffiti from Hunza, starting from the year 34 of the reign of Huvishka clearly give at least 11 dates of Huvishka and Vasudeva. The epigraph HK-3 of the year 7, may belong to the period of Kanishka whose name is possibly recorded in an undated document HK-2.²⁸ These inscriptions clearly indicate that these ancient sites of Alam Bridge, Gilgit and Hunza were well within the Kushana empire, alluding to Kushana sway over a portion of the upper regions of modern Kashmir. If all the records are taken into account, the Kushana rule should have been in this region at least from the period of Wema Kadphises to that of the year 91 of the reign of Vasudeva.²⁹

Thus both the Brahmi and Kharoashthi epigraph are indispensable for the study of Kushana history. Apart from providing information about the genealogy, chronology and political boundaries of the empire they throw valuable light on various aspects of the population under the Kushana rule and the religious ethos.

(Footnotes)

- ¹ N.S. Williams and J. Cribb, 'A New Bactrian Inscriptions of Kanishka the Great', *Silk Road Art and Archaeology*, The Institute of Silk Road Studies, Kamakura, Japan, 1995/96, pp.75-123.
- ² B.N. Mukherjee, 'The Great Kushana Testament', *Indian Museum Bulletin*, Calcutta, 1995, pp.10-11.
- ³ Lines 5-7 of the Raktak inscription as translated by N.S. William and J. Cribb, 1995/96, *op. cit.* pp.75-79, 107.
- ⁴ B.N. Mukherjee, 1995, *op. cit.*
- ⁵ J.M. Rosenfield, 1967, *op. cit.*, p.106.



- ⁶ S. Shrava, *Dated Kushan Inscriptions*, Delhi, 1993, p. V.
- ⁷ *CII*, II, pt. 1, 1929, p.77.
- ⁸ *CII*, II, pt. 1, 1929, p.137.
- ⁹ *EI*, VIII, pp.196 ff.
- ¹⁰ *EI*, XXI, pp.60f.
- ¹¹ *JRAS*, 1924, No. 3, p.397 ff.
- ¹² S. Shrava, 1993, *op. cit.*, p.181.
- ¹³ B.N. Mukherjee, 1988, *op. cit.*, p.486.
- ¹⁴ *Ibid.*, pp.487-88.
- ¹⁵ S. Shrava, 1993, *op. cit.*, p.193.
- ¹⁶ *EI*, IX, pp. 239f, No 1.
- ¹⁷ J.P Vogel, *Catalouge of Mathura Museum*, No. Q. 13.
- ¹⁸ *CII*, II, pt. 1, p.70.
- ¹⁹ *Journal of U.P Historical Society*, XVI (1), pp.65-66.
- ²⁰ B. Chattopadhyay, 1967, *op. cit.*, p.172.
- ²¹ B.N. Mukherjee, 'The Great Kushana Testament', *Indian Museum Bulletin*, Calcutta, 1995, pp.10-18, Lines 7-9 of Rabtak inscription.
- ²² S. Konow, *CII*, I, 1929, pp.161 and 159-60.
- ²³ S. Shrava, 1993, *op. cit.*, p.135.
- ²⁴ K. Jettmar (ed.), *Antiquities of Northern Pakistan*, Vol. I, Mainz, 1993, pp.1-40.
- ²⁵ *Ibid.*, p. XXXI.
- ²⁶ *Ibid.*, p. XIX.



²⁷ A.H. Dani, 'The Sacred Rock of Hunza', *Journal of Central Asia*, Islamabad, 1985, Vol VIII, no. 2, pp.5f, 9.

²⁸ *Ibid.*

²⁹ S. Shrava, 1993, *op. cit.*, p.136.



ENHANCING A WEIGHTED QUERY AND SECURE MULTI- KEYWORD RANKED SEARCH OVER ENCRYPTED DATA SET IN CLOUD

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I. INTRODUCTION

During the preceding several decades, remarkable advances in computing power, storage space, and networking technology have authorized the individual race to generate, process, and share escalating amounts of information in significantly new ways. As new applications of computing technology are developed and introduced, these applications are frequently used in ways that their designers never envisioned. New applications, in turn, lead to new difficulty for even more authoritative computing infrastructure[1].

Amazon is best known for trade books online, but they are also dynamically investing in services that permit developers to take advantage of their computing knowledge. Amazon Web Services provide developers use of open APIs to access Amazon's enormous infrastructure in a manner imprecisely significant of timeshared computing. By using these Amazon on a fee-based list, with the ability to grow as needed[2]. Software developers, turn on companies, and



established companies in need of reliable computing power are members of a huge and growing crowd using Amazon services. Amazon is also now claiming location simplicity for a worldwide distributed cloud. They are building out their computational path to be more geologically distributed. Additionally, they are recovering fault tolerance by creating accessibility Zones that will allow users to generate instances of their applications in circulated regions. [3].

Cloud computing relies on sharing of resources to complete coherence and economies of scale, related to a network. At the organization of cloud computing is the broader concept of converged infrastructure and shared services. The cloud also focus on maximize the efficiency of the shared assets. Cloud resources are usually not only shared by multiple users but are also vigorously reallocated per insist. This can work for allocating resources to users [4]. For example, a cloud processor facility that serves European users during European trade hours with a specific application (e.g., email) may reallocate the same resources to serve North American users during North America's business hours with a different application (e.g., a web server). This approach should utilize the use of computing powers thus reducing ecological damage as well since fewer power, air conditioning, rack space, etc. is required for a mixture of functions [5].

II. RELATED WORK

A) Based on Execution of Workloads in Clouds with Nefeli, IEEE Transactions 2013

The challenges to the general cloud are the abilities in dealing with multimodal, Cloud interface abstractions restrict users from providing information regarding usage patterns of their requested



virtual machines (VMs), concealing all physical underlying machinery. Cloud consumers provide deployment hints on the possible mapping of VMs to physical nodes through Nefeli. Such hints include the collocation and anti-collocation of VMs, the subsistence of possible performance bottlenecks, the presence of fundamental hardware features, the proximity of certain VMs to data repositories, or any former information that would supply in a more effective placement of VMs to physical hosting nodes. The advantages are Nefeli captures workloads as executed by the cloud may change over time, changes VM deployment, helps evade bottlenecks, and ultimately, improves the superiority of the rendered services. The drawbacks are the implementation details of the High Avail constraint are not revealed to the consumer as they are specific to each cloud infrastructure [6].

B) A Versatile & Efficient Framework for Resource Management in the Cloud

This is the general resource management architecture that uses the stable matching framework to decouple policies from mechanisms when mapping virtual machines to physical .The operators and clients are able to express a variety of distinct resource management policies as they estimate fit, and these policies are captured as preferences in the stable matching framework. The advantages are Many-to-one stable matching theory that efficiently matches VMs with heterogeneous resource needs to servers, using both offline and online algorithms is in secure. VMs may require to be replaced, where specific considerations for VM live migration are needed in case of Anchor. the drawbacks are We use the DA algorithm that randomly pick any free job that has not proposed to every machine on its preference to



propose to its favorite machine that has not yet rejected it, This may fail to be effective[7].

C) Fuzzy Keyword investigate over Encrypted Data in Cloud Computing

Fuzzy keyword search greatly enhances system usability by returning the matching files when users' searching inputs exactly match the predefined keywords or the closest possible matching files based on keyword similarity semantics, when exact match fails. To edit distance quantify keywords similarity and develop an advanced technique on constructing fuzzy keyword sets, which greatly reduces the storage space and representation outflow. The advantages are Building up fuzzy keyword sets that incorporate not only the exact keywords but also the ones differing slightly due to minor typos, format inconsistencies, etc. The drawbacks are search ranking that sorts the searching results according to the relevance criteria but even it produces too many search results .The extraction of exact file takes much time to solve the user needs [8].

III. SECURITY AND PRIVACY

The cloud provides the following security and privacy [14].

A. IDENTITY MANAGEMENT

Every scheme will have its own identity management system to organize access to information and computing resources. Cloud providers either incorporate the customer's identity management system into their own infrastructure, using federation or SSO technology, or present an identity management solution of their own.



B. PHYSICAL AND PERSONNEL SECURITY

Providers ensure that physical machines are effectively secure and that access to these technology as well as all related customer data is not only controlled but that access is documented.

C. AVAILABILITY

Cloud source assure clients that they will have standard and conventional access to their data and applications.

D. APPLICATION SECURITY

Cloud providers ensure that applications offered as a service via the cloud are secure by implementing testing and acceptance procedures for outsourced or packaged request code. It also requires application security process be in place in the manufacture situation.

E. PRIVACY

Finally, providers guarantee that all critical data (credit card numbers, for example) are masked and that only certified users have access to data in its entirety. Moreover, digital identities and identification must be confined as should any data that the provider collects or produces about customer activity in the cloud.

F. LEGAL ISSUES

In addition, providers and customers must consider authorized issues, such as Contracts and E-Discovery, and the linked laws, which may differ by country.

IV. PRELIMINARIES

A. INNER PRODUCT SIMILARITY

In this paper, we consider the general problem of efficient maximum inner-product search and propose two tree-based branch-and-bound algorithms all along with a new data structure to solve this



problem more powerfully than the adolescent linear scan. In the following segment, contrast the problem to the usual problems of nearest-neighbor search in metric spaces and best-matches with respect to cosine-similarity [9] [10].

B. K-NEAREST NEIGHBOR

The k -nearest neighbor algorithm (k-NN) is a method to classify an object based on the majority class amongst its k -nearest neighbors. The k-NN is a type of lazy knowledge where the function is only approximated locally and all computation is delayed until classification. k-NN algorithm frequently use the Euclidean or the Manhattan distance. This figure shows that Decision Tree has the fastest classification time followed by Naïve Bayes and k-Nearest Neighbor. The differences between classification time of Decision Tree and Naïve Bayes also between Naïve Bayes and k-NN are about an order of magnitude [11].

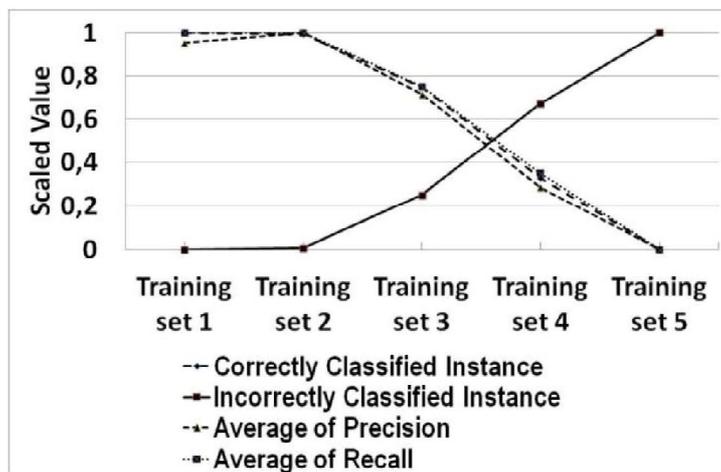


Fig 1: k-NN presentation on various training sets.



a. Disadvantage

Our research shows that Decision Tree is the fastest and k-Nearest Neighbor is the slowest. The fast classification time of Decision Tree because there is no calculation in its classification. In the meantime k-Nearest Neighbor is the slowest classifier because the classification time is directly linked to the number of data. The greater the data, the larger distance calculations must be performed. This causes the classification is enormously slow [11].

C. DECISION TREE

A decision tree is a flow-chart-like tree structure, where each internal node denotes the analysis on an attribute, each twig represents a conclusion of the test, and leaf nodes represent classes or class distributions. The popular Decision Tree algorithms are ID3, C4.5, and CART. The ID3 algorithm is considered as a very simple decision tree algorithm [12].

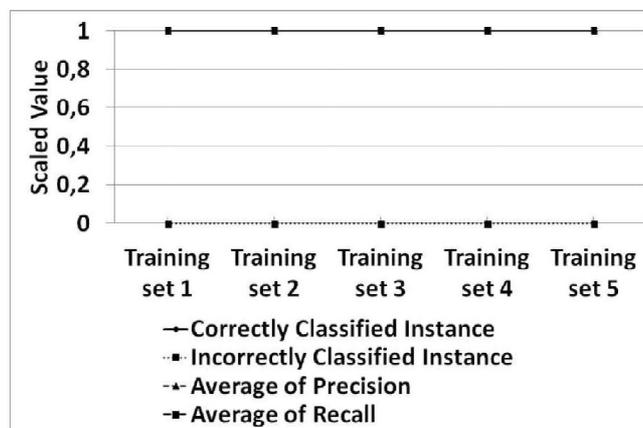


Fig 2: Decision Tree performance on different training sets.

a. PSEUDOCODE

node Learn Tree(*examples*, *mark element*, *attributes*)



```

examples is the training set
mark element is what to learn
attributes is the set of obtainable attributes
returns a tree node
begin
if all the examples have the same mark element value,
    return a leaf with that value
else if the set of attributes is empty
    revisit a leaf with the most common mark element value
    among examples
    else begin
A = the "best" attribute among attributes having a range of
value v1, v2, ..., vk
Partition examples according to their value for A into set S1,
S2, ..., Sk
    generate a decision node N with attribute A
    for i = 1 to k
        begin

            Attach a branch B to node N with test  $V_i$ 
            if  $S_i$  has elements (is non-empty)
                Attach B to Learn Tree( $S_i$ , mark element,
attributes - {A});
            else
                Attach B to a leaf node with most
                common mark element
        end
    end
  
```



```
        return decision node N
    end
end
```

D. AES

Advanced Encryption Standard (AES) algorithm not only for security but also for great speed. Both hardware and software implementation are faster still. New encryption standard recommended by NIST to replace DES Encrypts data blocks of 128 bits in 10,12 and 14 round depending on key size as shown in Figure-3. .it can be implemented on various platforms especially in small devices. It is carefully tested for many security applications [13].

a. PSEUDOCODE

```
Cipher(input, output)
{
    var state
    state = input
    AddRoundKey
    for (round = 0; round < nr_of_rounds; ++round)
    {
        Sub Bytes
        Shift Rows
        Mix Columns
        AddRoundKey
    }
    Sub Bytes
    Shift Rows
```



```

AddRoundKey
    output = state
}
    
```

V. ALGORITHMS PERFORMANCE EVALUATIONS

Based on the tentative result it was done that AES algorithm consumes least encryption and decryption time and buffer usage compared to DES algorithm. But RSA consume additional encryption time and buffer usage is also very high. We also experiential that decryption of AES algorithm is better than other algorithms. From the imitation result, AES algorithm is much better than DES and RSA algorithm [13].

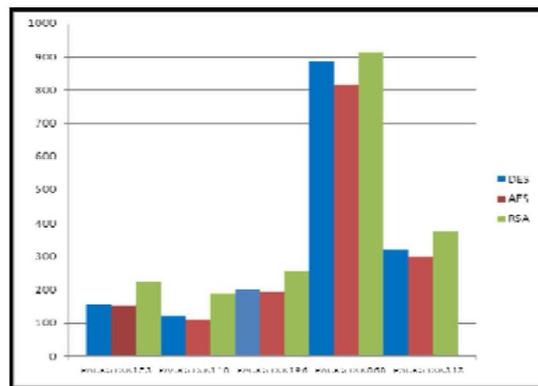


Fig 3: It shows buffer size usages by AES, DES and RSA algorithm

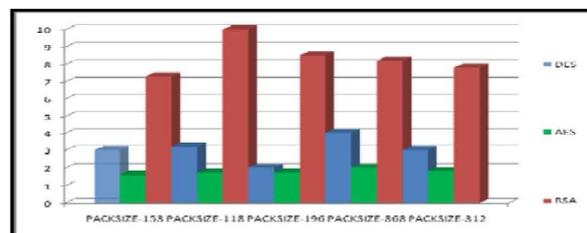


Fig 4: Comparative status of Encryption Time among DES, AES and RSA

VI. PROPOSED WORK

In Existing System there are large number of data users and permit in cloud, it is essential for the search package to allow multi-keyword query and provide result similarity ranking to meet the effective data repossession need. The searchable encryption focus on solitary keyword search or Boolean keyword search, and hardly ever differentiates the search grades.

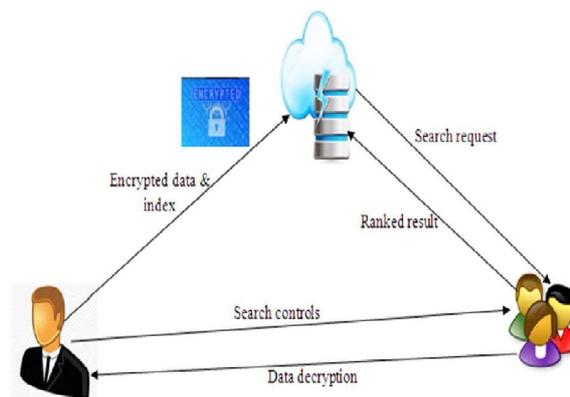


Fig 5: Architecture diagram

In our proposed system, decision tree algorithm are used search an encrypted data on cloud which is scheme of "inner product similarity". Because k-nearest neighbor is much slower than the decision trees, k-nn is not implemented. Decision trees are much faster than other schemes. In this fig, data owner encrypts a data and converted into zip file and allow only the authorized user to decrypt the zip file.

A. EVALUATION METHODOLOGY

a. Encryption Module

This module is used to facilitate the server to encrypt the document using RSA Algorithm and to convert the encrypted



document to the Zip file with activation code and then activation code transmit to the user for download.

b. Data owner Module

This module is used to facilitate the client to seek out the file using the multiple key words concept and get the perfect result list based on the user query. The user is going to select the mandatory file and register the user details and get activation code in mail from the email before enter the establishment code. After client can download the Zip file and extract that file.

c. Multi-keyword Module

This module is used to help the user to get the accurate result based on the multiple keyword concepts. The client can enter the numerous words query, the server is available to split that question into a single word after search that word file in our folder. Finally, exhibit the matched word list from the database and the user gets the file from that list.

d. Data User Module

This module is used to aid the server to analysis details and upload files with the security. Data User uses the log key to the login time. Before the logout, Data User change the log key. The Data User can change the password after the login and view the user downloading details and the counting of file request details on flowchart. The Data User can upload the file after the conversion of the Zip file format[9].

VII.CONCLUSION

In this paper, for the primary time we characterize and resolve the problem of multi-keyword ranked search over encrypted cloud data,



and found a variety of privacy requests. Along with various multi-keyword semantics, choose the proficient similarity measure of “coordinate matching”, i.e., as various matches as possible, to efficiently capture the weight of outsourced documents to the query keywords, and use “inner product similarity” to quantitatively estimate such similarity measure. Proposed a basic idea of MRSE using secure inner product computation and produce the weighted query over encrypted data and check the integrity of the rank order in the search result

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SUICIDE AS NARRATIVE STRATEGY IN TWENTIETH CENTURY WOMEN'S FICTION: DORIS LESSING'S THE GRASS IS SINGING

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Suicide is a central narrative theme in much of women's literature especially as it connects with female artists seeking autonomy in their personal and professional lives. In present scenario the novels written by women suggest suicide's use as a measure of defiance rather than defeat and its absence as a mark of personal ascendancy. In this study one can find a fertile critical ground for exploring a female aesthetic using suicide as a measure of women's search for autonomy. Here, analysis of Doris Lessing's one of the significant works *The Grass is Singing* indicates the suicide theme is aggravated many fold if the white women marries a black man.

The Grass is Singing is about the relation between the individual and the collective, between black and white, between men and women, between the settler and the land, between role and identity, between the Freudian nightmare repetition and the Jungian task of individuation are related themes appearing in the novel. At the most obvious level it depicts a complex clash of value systems.

Mary Turner, the central character of the novel, is dead at the start, and we learn, by way of flashback, the explanation for her death. The evocation of the atrophied African farm, the way that the environment sucks the life out of Mary, is superbly done. It is quasi-naturalism, with an omniscient narrator to direct us to the reality seems obviously an element



of inbuilt racism of the colonials in Southern Africa. The connection between Mary and Moses breaks the great taboo of the colour bar between the black and white races. With disastrous results and yet in a way that both emphasizes the decadence and sterility of the life in which Mary is trapped, and hints that her only hope of renewal is through the forbidden bond which is being created with Moses.

Roberta has examined *The Grass is Singing* under the concept of "Breaking Down, Breaking Out" in her work *The Novelistic Vision of Doris Lessing: Breaking the Forms of Consciousness* (1979). As it is a novel of initiation, taking as its starting point a young woman who has not yet discovered her own values within the matrix of her geographical, social, political, psychological universes, or who is unable to act in a way that is consistent with her own ideals. "Breaking Out" describes the interplay of forces within as well as outside the personality that produces certain kinds of relationships and self-discoveries. "Breaking Down" is the extreme form of that struggle, resulting from the enclosure of the self by constraints that, whether external/internal are perceived as barriers to it. Hence Roberta's argument is primarily concerned with the protagonist's efforts to achieve self-awareness and autonomy. In retrospect, it is remarkable to discover the seeds for so many of Doris Lessing's later preoccupations in her first novel, *The Grass is Singing*. Among her concerns with social, economic, and political structures, with being female in a conventional man's world and white in black Africa, one also finds the central cluster of her ideas concerning the abnormal consciousness: fragmentation, self-division, breakdown, the subjective distortions of perception, and implicit questions about the relationship between internal and external perspectives/events. In fact, fragmentation itself is an index of inadequate/coercive social and political structures – such as the oppression of blacks/



women. Inwardly, it is the manifestations of one particular response to those life-denying/intolerable social edifices. The mental breakdown of Mary Turner anticipates a variety of acute and disorienting mental experiences.

Moses retains a negative vitality. Recognizing his mistress's distraught state, the servant one day steers her to bed to rest. His very solicitousness and assumption of control further distress her, since she consciously denies the "personal" dimension and, beneath it, the attraction she feels toward him. Yet the more she denies it, the more she feels herself in his power. Her dreams haunt her with images of her submission to Moses's control and kindness. The relationship between Mary and Moses depicts in microcosm several forms of power relationships. On the political level it duplicates the imbalance between the oppressive white minority and the black majority in South Africa. More suggestively, on the physical level it reflects the shifting tensions of sexual dominance and submission between male and female. On the psychological level it dramatizes the splits within the fragmenting personality. This correspondence between the microcosms of private relationship and the elements of individual personality on the one hand and the macrocosm within which they develop on the other later becomes one of Lessing's most consistent fictional techniques. Moreover, the division into opposing polarities – whether typified as conscious/unconscious, white/black, male/female, dominant/submissive – corresponds to the paradigm of the psyche elaborated by Carl Jung.

The Jungian orientation becomes increasingly visible in Lessing's fiction, as she was in direct contact with the ideas of Jung's psyche through Jungian analysis. Both in the design of the works and in the conceptualization of her characters' psychic realities we can identify it. In *The Grass is Singing* the pattern of duality is already present: Mary



Turner's consciousness is split into conscious and unconscious aspects, the latter of which is psychologically and narratively realized through her relationship to and perception of Moses. Functioning on the symbolic level of the narrative as a kind of alter ego or complementary double, Moses becomes a screen upon which Mary projects her own denied negative self. Lessing dramatizes Jung's concept of "shadow" mechanism in the psyche, as it takes place in Mary Turner, exploring her experience as measured against the other characters' perceptions of her behavior. As Mary's unwilling involvement with Moses progresses, her mind wanders and she loses her sense of time. Dick becomes ill again. Interestingly, his stress results in physical breakdown while his wife's takes the form of mental breakdown; as incomplete as he may be, he is not forced to confront his inner conflicts the way Mary is. One night while Mary is overwhelmed by terrifying sexual dreams about her father, Moses assumes responsibility for Dick's care.

At this point Lessing shifts from the objective narration of the earlier part of the novel into a subjective point of view, describing events as if perceived by a consciousness highly distorted by emotional anguish. Looking in on Dick, for example, Mary sees one of Moses's legs, "an enormous, more than life-size leg, the limb of a giant" (191) – suggestive, also, of her denied sexual feelings. Nightmare and reality become indistinguishable as she dreams that Dick is dead and ambivalently feels both relief and guilt. Moses merges into the image of her father, who approaches her lasciviously, smelling foul. "He came near and put his hand on her arm. It was the voice of the African she heard. He was comforting her because of Dick's death . . . but at the same time it was her father menacing and horrible, who touched her in desire" (192). Lessing condenses the several important male figures in Mary's frigidity, her need/dread of domination, and her repressed



sexuality. The obsessive and distorted quality of Mary's perceptions increases as Dick becomes not just dreamlike but unreal; the sole reality is the ubiquitous presence of Moses. Knowing that he senses her fear of him, which gives him power over her, Mary fears him even more. "They were like two antagonists, silently sparring. Only he was powerful and sure of himself, and she was undermined with fear by her terrible dream-filled nights, her obsession" (196). Thus Moses absorbs more and more of the positive attributes of Mary's own disintegrating personality.

The last two chapters of *The Grass is Singing* juxtapose two very different perspectives: the external, conventional reality and values of South Africa, represented by the Turners' opportunistic neighbor, Charlie Slatter; and Mary's disintegrating inner reality. On a rare visit to the Turners, Charlie notices the altered power relationship between mistress and servant, and is shocked by the undercurrent of coyness on Mary's part and the impersonal contempt on Moses's. Charlie's motive for urging the Turners to leave their failing farm conforms to the "first law of white South Africa, which is: 'Thou shalt not let your fellow whites sink lower than a certain point; because if you do, the nigger will see he is as good as you are'" (210). A second external perspective is supplied by Tony Marston, a more compassionate young man whom Charlie calculatingly sends to the Turners to learn how to manage the farm that he will buy from them. Marston observes that she giggles, inserts non sequiturs into dinner conversations, or lapses into staring silences. He confidently labels her condition to himself as "complete nervous break-down" (217). Later he accidentally witnesses Mary being dressed by Moses. Her behavior is emotionless, revealing the radical division between the conscious and unconscious dimensions of her experience. Mary depersonalizes Moses so completely in her conscious mind that he is only a machine who caters to her wishes. At the same time she is



unconsciously acting out the sexual intimacy that she cannot consciously acknowledge.

Marston can only comprehend such bizarre behavior in terms of madness, but at the same time he admits to himself that “she can’t be mad. She doesn’t behave as if she were. She behaves simply as if she lives in a world of her own, where other people’s standards don’t count. . .” (221). Through Marston’s own uncertainties, Lessing suggests the indistinct boundary between sanity and madness, and condemns the facile compartmentalization of mental illness that becomes both a judgment and a way of depersonalizing the sufferer – the position already radical at the time of the publication of *The Grass is Singing*. The final chapter of the novel is told almost entirely from the perspective of the abnormal consciousness. It begins with Mary’s mind in a rare relaxed moment, mulling over an imagined reconstruction of her physical surroundings, beginning with the immediate details of the room and expanding outward to the house and beyond. This mental exercise involves a progressive movement outward from the core of the subjective self to greater and greater objectivity, distance, and psychic release from tension. For Mary it is not so much a therapeutic exercise as a powerful representation of her self-alienation, in order to suppress the uncontrollable emotional turmoil within. The description of Mary Turner’s last day dramatizes the extreme point of her breakdown, amplifying the dissonant forces within her psyche. The intensity of the sun and the shrill din of the cicadas cancel out her ecstasy, as the narrator describes the external object world perceived through the protagonist’s abnormal consciousness. Mary’s emotional claustrophobia is symbolized by “the room closing in upon her like a prison” (224) – the reverse of the out ward movement recounted earlier and a metaphor for the correspondence between mental state and outer surroundings. Mary’s

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consciousness is dominated by an awareness of "he" (Moses) outside somewhere, waiting for her until nightfall.

Further distortions of "external" reality occur where time becomes space, Mary's vision of what will happen to her surroundings once she is gone takes shape in a moment of psychotic insight. The successive encroachments of rats, beetles, rain, grass, bushes, creepers, branches, trees, toads, and worms suggest the terrifying impingement of an unbearable reality upon her own fragmenting self. The impersonal world she has constructed to protect her from her unacceptable feelings finally comes to mirror the depersonalization that has reduced her to a shell with "nothing left" (230). This particular form of Mary's psychic state at this point resembles what the British psychiatrist R. D. Laing calls "engulfment" or "implosion." In one of Mary Turner's few remaining acts of will, she submits herself to the dreaded "other," walking out into the bush to confront her destruction. Her mind gropes for order again and seizes on the image of young Tony, who might be able to save her from the terror, just as, years earlier, she had chosen Dick, to be "saved from herself by marrying him" (237). Confronting Tony, however, she sees that there is no escape, that neither he nor anyone else can save her now. Concerned but helpless, Dick and Tony cannot see the presence that Mary knows is waiting for her in the darkness, since he exists primarily in her own inner darkness. Lessing's portrayal of her protagonist's mental state dramatizes the degree to which Mary inhabits a psychic universe of her own creation. As she expects and wills, Moses comes to meet her, cutting off her scream, and her life, in the midst of her one final thought – that the bush had avenged itself upon her. "The trees advanced in a rush, like beasts, and the thunder was the noise of their coming" (243).

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The novel ends with Moses retreating into the bush and then abruptly turning back to await his own certain fate – “though what thoughts of regret, of pity, or perhaps even wounded human affection were compounded with the satisfaction of his completed revenge, it is impossible to say” (245). For the central reality of Mary’s psychic breakdown is based finally not on Moses but on what her own disturbed consciousness has made of him. As the “other” for her, he is the only route left for her desired escape from herself. The tension between acknowledged and unconscious feeling is so extreme that the one possible release is her total annihilation. Moreover, only Moses, the embodiment of her self-hatred and need for punishment of her illicit desires, can bestow upon her. The physical death of Mary Turner is the form of her psychic death made tangible.

The Grass Is Singing thus anticipates many of Doris Lessing’s subsequent explorations of the abnormal consciousness, particularly as manifested in mental breakdown and madness. The fragmentation to which she succumbs is a product of both private emptiness and political realities (understood through sexual power relationships: male/female and black/white). What Lessing has made so vivid in this first novel is the evolution of psychic realities as they transform the outer world into projections of the character’s own denied self. While Mary’s breakdown is an essentially private one, the novel as a whole provides the corresponding societal context within which it takes place, through its dramatization of the dehumanization imposed on both races by the color bar. The political reality of South Africa is an institutionalized form of fragmentation and madness in the macrocosm: depersonalization practiced as a culturally accepted norm. In addition to these thematic concerns, one finds in *The Grass Is Singing* the structural patterns; the psychic determinism suggested in Mary’s situation is mirrored in and reinforced by the organization of the



narrative. Each development grows inevitably out of the dialectic of the plot: the formation of Mary's character in response to the alternatives available to her, which in turn shape her subsequent choices; and the inner dialectic of her mind, split between allowed and prohibited feelings, dominance and submission, hostility and desire. Both dialectics unfold toward a single end, achieving a negative resolution in the murder already announced at the beginning of the novel. Thus the return to the beginning is the formal expression of Mary's life. The novel describes a circle that encloses and shapes the reality from which she cannot escape – the empty imprisonment of her own fragmented being.

Thus in this study one can find a fertile critical ground for exploring a female aesthetic using suicide as a measure of women's search for autonomy. Here Lessing's novel, *The Grass is Singing* has aptly indicated that "suicide" theme is aggravated many fold if the white women marries a black man.

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ENHANCING THE QUALITY AND ACCESSIBILITY OF HIGHER EDUCATION THROUGH THE USE OF ICT

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India, like any other knowledge economy, depends on the development of its educational sector. Higher education drives the competitiveness and employment generation in India. However, research findings have shown that the overall state of higher education is dismal in the country. There is a severe constraint on the availability of skilled labor (Agarwal, 2006). There exist socio-economic, cultural, time and geographical barriers for people who wish to pursue higher education (Bhattacharya and Sharma, 2007). Innovative use of Information and Communication Technology can potentially solve this problem. Education is the driving force of economic and social development in any country (Cholin, 2005) Considering this, it is necessary to find ways to make education of good quality, accessible and affordable to all, using the latest technology available.

The last two decades have witnessed a revolution caused by the rapid development of Information and Communication Technology (ICT). ICT has changed the dynamics of various industries as well as influenced the way people interact and work in the society Internet usage in home and work place has grown exponentially (McGorry, 2002). ICT has the potential to remove the barriers that are causing the problems of low rate of education in any country. It can be used as a tool to overcome the issues of cost, less number of teachers, and poor quality of education as well as to overcome time and distance barriers (McGorry, 2002).



In the current Information society, there is an emergence of lifelong learners as the shelf life of knowledge and information decreases. People have to access knowledge via ICT to keep pace with the latest developments. In such a scenario, education, which always plays a critical role in any economic and social growth of a country, becomes even more important. Education not only increases the productive skills of the individual but also his earning power. It gives him a sense of well being as well as capacity to absorb new ideas, increases his social interaction, gives access to improved health and provides several more intangible benefits (Kozma, 2005). The various kinds of ICT products available and having relevance to education, such as teleconferencing, email, audio conferencing, television lessons, radio broadcasts, interactive radio counseling, interactive voice response system, audiocassettes and CD ROMs etc have been used in education for different purposes (Bhattacharya and Sharma, 2007).

Table 1 : The four main rationales for introducing ICT in education:

Rationale	Basis
Social	Perceived role that technology now plays in society and the need for familiarizing students with technology.
Vocational	Preparing students for jobs that require skills in technology.
Catalytic	Utility of technology to improve performance and effectiveness in teaching, management and many other social activities.
Pedagogical	To utilize technology in enhancing learning, flexibility and efficiency in curriculum delivery.

(Source : Cross and Adam,2007)

Today ICTs—including laptops wirelessly connected to the Internet, personal digital assistants, low cost video cameras, and cell phones have become affordable, accessible and integrated in large sections of the society throughout the world. It can restructure organizations, promote collaboration, increase democratic participation of citizens, improve the transparency and responsiveness of governmental agencies, make education



and health care more widely available, foster cultural creativity, and enhance the development in social integration (Kozma,2005). It is only through education and the integration of ICT in education that one can teach students to be participants in the growth process in this era of rapid change.

ICT can be used as a tool in the process of education in the following ways :

- **Informative tool** : It provides vast amount of data in various formats such as audio, video, documents.
- **Situating tool** : It creates situations, which the student experiences in real life. Thus, simulation and virtual reality is possible.
- **Constructive tool** : To manipulate the data and generate analysis.
- **Communicative tool** : It can be used to remove communication barriers such as that of space and time (Lim and Chai, 2004).

The following mediums are used for the delivery and for conducting the education process :

- ❖ **Voice** : Instructional audio tools that include interactive technologies as well as the passive ones.
- ❖ **Video** : Instructional video tools that include still images, prerecorded moving images, and real-time moving images combined with audio conferencing.
- ❖ **Print** : Instructional print formats that include textbooks, study guides, workbooks and case studies.

ICTs also allow for the creation of digital resources like digital libraries where the students, teachers and professionals can access research



material and course material from any place at any time. Such facilities allow the networking of academics and researchers and hence sharing of scholarly material. This avoids duplication of work (Cholin, 2005).

E-LEARNING HAS THE FOLLOWING ADVANTAGES :

- Eliminating time barriers in education for learners as well as teachers.
- Eliminating geographical barriers as learners can log on from any place.
- Asynchronous interaction is made possible leading to thoughtful and creative interaction.
- Enhanced group collaboration made possible via ICT.
- New educational approaches can be used.
- It can provide speedy dissemination of education to target disadvantaged groups.
- It offers the combination of education while balancing family and work life.
- It enhances the international dimension of educational services.
- It allows for just in time and just enough education for employees in organizations.
- It can also be used for non-formal education like health campaigns and literacy campaigns.

(Source : UNESCO,2002; Bhattacharya and Sharma, 2007)

E learning allows higher participation and greater interaction. It challenges the concept that face-to-face traditional education is superior



to it (Bhattacharya and Sharma, 2007). The web and the Internet is the core ICTs to spread education through e-learning. The components include e-portfolios, cyber infrastructures, digital libraries and online learning object repositories. All the above components create a digital identity of the student and connect all the stakeholders in the education. It also facilitates inter disciplinary research (Chandra and Patkar, 2007). Bottino and Sharma (2003) mention that the use of ICT can improve performance, teaching, administration, and develop relevant skills in the disadvantaged communities. It also improves the quality of education by facilitating learning by doing, real time conversation, delayed time conversation, directed instruction, self-learning, problem solving, information seeking and analysis, and critical thinking, as well as the ability to communicate, collaborate and learn. ICTs also provide a platform for sharing information and knowledge. This can be used for the betterment of program delivery in terms of replication of best practices. It also helps researchers by provision of information, networking, online journals, libraries and data. The possibility of real time interaction in all the different aspects of the education system like teaching, collaboration, debates etc hold great promise for the future (Mason, 2000).

E-learning allows delivery, dialogue and feedback over the Internet. It allows mass customization in terms of content and exams. E-education can provide access to the best gurus and the best practices or knowledge available (UNESCO, 2002). It is possible to leverage the online environment to facilitate teaching techniques like role-play across time and distance (Wishart, 2007). It can also facilitate the development of scenarios, which can be rarely witnessed in practice. ICT can play a valuable role to monitor and log the progress of the students across time, place and varied activities. Mooij (2007) states that differentiated ICT based education can be expected

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to provide greater reliability, validity, and efficiency of data collection and greater ease of analysis, evaluation, and interpretation at any educational level. In absence of ICT, most of the responsibility of teaching and learning lies on the teachers. However, with the help of ICT one can transfer the responsibilities to the students so that they can self manage. It helps to individualize the teaching or guidance method as per the student's need (Mooij, 2007; Ozdemir and Abrevaya, 2007). It also boosts the confidence level and the self-esteem of the students who acquire the ICT skills through the process of being exposed to such kind of learning (Casal, 2007). Mooij (2007) also puts forth the view that ICT-based registration, evaluation, and administration helps to link different levels of information and facilitate an overall view of the whole educational setup. It facilitates the evaluation and examination of the learning process and results by the students and the parents in a flexible and convenient way. The globalization process has also created a large market of offshore students. To reach them, information technology is the only convenient medium, which can offer education as a service. It increases education provision substantially and can contribute to mass education. It also creates competition among the institutions for providing education and hence improves the quality (Cross and Adam, 2007).

To summarize, the following table shows the main benefits of using ICT in education to the various stakeholders :

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Table 2 : Benefits of ICT in education to the main stakeholders.

Stakeholder	Benefits
<p>Students</p>	<ul style="list-style-type: none"> ➤ Increased access, ➤ Flexibility of content and delivery, ➤ Combination of work and education, ➤ Learner-centred approach, ➤ Higher quality of education and new ways of interaction.
<p>Employers</p>	<ul style="list-style-type: none"> ➤ High quality, cost effective professional development in the workplace, ➤ Upgrading of employee skills, increased productivity, ➤ Development of a new learning culture, ➤ Sharing of costs and of training time with the employees, ➤ Increased portability of training.
<p>Governments</p>	<ul style="list-style-type: none"> ➤ Increase the capacity and cost effectiveness of education and training systems, ➤ To reach target groups with limited access to conventional education and training, ➤ To support and enhance the quality and relevance of existing educational structures, ➤ To ensure the connection of educational institutions and curricula to the emerging networks and information resources, ➤ To promote innovation and opportunities for lifelong learning.

(Source : UNESCO, 2002)

India is making use of powerful combination of ICTs such as open source software, satellite technology, local language interfaces, easy to use human-computer interfaces, digital libraries, etc. with a long-term plan to reach the remotest of the villages. Community service centres have been started to promote e-learning throughout the country (Bhattacharya and Sharma, 2007).

FACTORS AFFECTING ADOPTION OF ICT IN EDUCATION :

There is a worldwide need felt for integrating ICT into education in order to improve the pedagogy to reflect the societal change. The main goals of ICT adoption in the education field are reducing costs per student, making education more affordable and accessible, increasing enrollments, improving course quality, and meeting the needs of local employers.



The main factors that affect the adoption of ICT in education are the mission or goal of a particular system, programs and curricula, teaching/ learning strategies and techniques, learning material and resources, communication and interaction, support and delivery systems, students, tutors, staff and other experts, management, housing and equipment, and evaluation (UNESCO, 2002). National vision, supported by coherent strategies and actions is the most important factor in integrating ICT in education. Successful implementation of ICT requires strong national support from government and local support from relevant institutions and education authorities. Sharma (2003) explains that the political powers of any nations affect the introduction of any new technology. Sharma and Amutabi and Oketch (2003) explain that cost is an important issue that decides and guides the adoption and growth of Information and Communication Technology especially in developing countries. The presence of an ICT champion is necessary at all levels of the system. The strong presence of such leadership is evident wherever ICT integration has been initiated successfully (Mason, 2000). Along with ICT training, one needs an ICT related support mechanism to gradually induce the integration (Lai & Pratt, 2004). This is needed as many teachers in face of technical difficulties may tend to revert to the older teaching (non-ICT based) methods. Teachers need support in using and integrating ICT into the curriculum and teaching methods. Teachers, who perceive greater ICT-related support being available to them, use technologies in their teaching much better (Tondeur et al, 2007).

POTENTIAL DRAWBACKS OF USING ICT IN EDUCATION :

Although ICT offers a whole lot of benefits there are some risks of using ICT in education which have to be mitigated through proper mechanisms. They are :



1. It may create a digital divide within class as students who are more familiar with ICT will reap more benefits and learn faster than those who are not as technology savvy.
2. It may shift the attention from the primary goal of the learning process to developing ICT skills, which is the secondary goal.
3. It can affect the bonding process between the teacher and the student as ICT becomes a communication tool rather than face to face conversation and thus the transactional distance is increased.
4. Also since not all teachers are experts with ICT they may be lax in updating the course content online which can slow down the learning among students.
5. The potential of plagiarism is high as student can copy information rather than learning and developing their own skills.
6. There is a need for training all stakeholders in ICT.
7. The cost of hardware and software can be very high.

SUMMARY AND CONCLUSIONS :

Changes in the curriculum do support fundamental economic and social transformation in the society. Such transformations require new kinds of skills, capabilities and attitudes, which can be developed by integrating ICT in education. The overall literature suggests that successful ICT integration depends on many factors. National policies as well as school policies and actions taken have a deep impact on the same. Similarly, there needs to be an ICT plan, support and training to all the stakeholders involved in the integration. There needs to be shared vision among the various stakeholders and a collaborative approach should be adopted. Care should be taken to influence the attitudes and beliefs of all the stakeholders.



ICT can affect the delivery of education and enable wider access to the same. In addition, it will increase flexibility so that learners can access the education regardless of time and geographical barriers. It can influence the way students are taught and how they learn. It would enable development of collaborative skills as well as knowledge creation skills. This in turn would better prepare the learners for lifelong learning as well as to join the industry. It can improve the quality of learning and thus contribute to the economy.

Similarly wider availability of best practices and best course material in education, which can be shared by means of ICT, can foster better teaching. However there exist some risks and drawbacks with introducing ICT in education which have to be mitigated. Successful implementation of ICT to lead change is more about influencing and empowering teachers and supporting them in their engagement with students in learning rather than acquiring computer skills and obtaining software and equipment. Also proper controls and licensing should be ensured so that accountability, quality assurance, accreditation and consumer protection are taken care of. ICT enabled education will ultimately lead to the democratization of education.

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BODY HYDRATION STATUS AND PSYCHO-PHYSIOLOGICAL PROFILE OF COLLEGE LEVEL BASKETBALL PLAYERS (18-22YEARS)

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1. Introduction

Water constitutes 60-70% of human body weight, as an integral part of cell membrane, a cushion to organs and a medium for circulatory functions, biochemical reactions, metabolism and substrate transport across cellular membranes (Armstrong, 2007). The total amount of water in human body "Total body water" (TBW) is distributed between two compartments, of which 35-40% is outside the cell and is called ECF (Extra cellular fluid), while 60-65% is inside the cells and is called Intracellular fluid (ICF).

1.1 Dehydration

It refers to an inadequate amount of fluid in the body. During exercise, sweat output exceeds water intake, producing a water deficit condition or hypohydration, which lowers both intracellular and extracellular fluid volumes. Depending upon the adequacy of fluid intake, dehydration of 1-8% of body mass can occur during physical activity (Sharp, 2006). Cognitive/mental performance, which is important where concentration, skilled tasks and tactical issues are involved, is also degraded by dehydration (Cheuvront et al, 2003).

1.2 Hydration status refers to the status of the fluid-electrolyte balance, which is important for all humans. Dehydration results in unavoidable,



deteriorating effects on physiological function and exercise performance (Murray, 2007).

1.3 Impact of hydration status on physiological function and exercise

Prolonged exercise leads to progressive water and electrolyte loss from the body as sweat is secreted to promote heat loss. Water lost with sweating is derived from all fluid compartments of the body (both the ECF and ICF). Dehydration increases physiological strain as measured by heart rate and perceived exertion responses during exercise-heat stress, induces premature fatigue (González-Alonso, José, Mora-Rodríguez, Below, & Coyle, 1997) and changes in muscle metabolism. Hence providing adequate amounts of fluids to body tissues- "**hydration**" and therefore "assessment of hydration status" is very important in maintaining optimal physical and mental functioning (Shanholtzer and Patterson, 2002).

1.4 Psychophysiology

Psychophysiology is the scientific discipline devoted to the study of the interrelationships between the physiological and psychological aspects of behavior (SPR). It is concerned with the brain behavior relationship in the framework of peripheral and central physiological responses i.e. the interplay between physiological and psychological effects of behavior (Hugdahl, 1995).

While cognitive and motor control functions have been extensively explored with respect to hydration, recent studies in this area have reported minimal dehydration (0.4%) induced changes in the psycho-physiological parameters such as Heart rate and Choice reaction time (D'anci, Vibhakar, Kanter, Mahoney, & Taylor, 2009). A number of studies have supported the relationship between hydration status and cognition (Danci et al., 2009;



Kashihara et al, 2009; Bellisle et al, 2010) but psychophysiology and sports performance is relatively a new area of research.

Objectives

To determine the body hydration status and psycho-physiological profile of college level basketball players 18-22 years before and after exercise and compare both the parameters.

Need for the study

Dehydration hampers aerobic performance capacity and compromises cognitive capabilities with long term effect of damaging DNA and increase risk of exertional heat injury. College students trained in uncontrolled environment coupled with a poor knowledge and practices related to hydration are confronted with physiological and psychological challenges that put them at potential risk of dehydration. The onset of dehydration is preventable or atleast modifiable when hydration protocols are followed that will ensure voluntary euhydration by the athletes.

2. Methodology

2.1 Subjects- Subjects ranging in age from 18-22 years were taken for the study selected via purposive sampling technique. The inclusion criterion was Age (18-22 yrs), only female subjects were chosen. Exclusion criteria was with those who are not medically fit and under any medication / smoking/alcohol or drug abuse or suffering from stress, anxiety or fear or trying to loose or gain weight and also those not willing to participate. Consent letters were given to all basketball players. Those who returned the consent forms in affirmation were included for the screening process. Anthropometry was included in the study (Height, Weight, BMI and Body Composition)



2.2 Criteria for selection of Locale: Homogeneity of the sample and Easy Accessibility.

2.3 Statistical Analysis- The analysis of data including psychophysiology as well as hydration status was processed and computerized using SPSS software (Version 17.0). All the psycho-physiological and biochemical measurements were compared with the standard values.

2.4 Measurement of Psycho-physiological parameters

a) Heart Rate

Heart rate is the number of heartbeats per unit of time. It indicates the level of fitness and exercise intensity. Typical healthy resting heart rate in adults is 60–80 bpm. A calibrated heart rate monitor was used.

b) Reaction Time:

Reaction time is the elapsed time between the presentation of a sensory stimulus and the subsequent behavioral response (Jensen, 2006). A calibrated reaction timer was used.

2.5 Measurement of Body Hydration status

Although there is no gold standard for assessing hydration status changes in urine osmolality, urine pH and urine specific gravity are most widely used indices (Kavouras, 2002). Urine pH and Urine specific gravity are used for measuring the hydration status in the study and is performed using Multistix Reagent strips.

3. Results

3.1 Heart rate

It is a good predictor of the level of fitness as well as the level of fatigue in an individual. Typical healthy resting heart rate in adults is 60–80 bpm,



however highly conditioned athletes often have resting heart rates below 60 bpm. Pre and post exercise HR was measured.

Table 1: Pre and post Exercise HR

HR range (bpm)	Pre exercise (%)	Post exercise (%)
60-65	25	0
66-71	30	0
72-77	15	10
78-83	25	35
84-89	0	30
90-95	5	20
96-101	0	5

3.1.1 Pre Exercise HR

The lower the basal heart rate; better is the level of fitness of an individual. The pre exercise HR indicated that about 25% of the subjects had their basal heart rate in the range of 60-65 bpm, 30% of the subjects had it in the range of 66-71 bpm. This lower range of heart rate indicated that the individuals can sustain long bouts of exercise without easily getting fatigued and therefore it indicates the aerobic capacity of individual. Only 5% of the subjects had slightly high levels of heart rate. Post exercise heart rate was measured after the completion of cooling down exercises.

3.1.2 Post Exercise HR

Generally, heart rate rises after the exercise but a fit individual's rise in HR is low in magnitude indicating better aerobic capacity of the individual. The post exercise HR indicates that 30% of the subjects had their HR in the range of 84-89 bpm followed by (20%) in 90-95 bpm and Only 5 % had their heart rate reaching to a level of 96-101 bpm.

3.2 Reaction Time

RT is another contributor to sports performance. It can be improved marginally with practice and declines under conditions of fatigue and



distractions (Der and Deary, 2006). In case of pre-exercise RT 25% subjects had excellent to very good RT. However 15 % needed improvement. In case of post-exercise RT, nearly 15% subjects had below average RT and 85% needed improvement indicating the severe effects of dehydration and exercise induced stress on reaction time. T-test was used to compare the pre and post psycho-physiological parameters. The results are compared with the standard values (Sahni, 2002).

Table 2: Pre and post Exercise RT

RT (milliseconds)	Pre exercise (%)	Post exercise (%)
0.250-0.275 or less	10	0
0.275-0.300	15	0
0.300-0.325	6	15
0.325 onwards	15	85

Table 3: Changes in mean Pre and Post exercise psycho-physiological profile

Parameter	Pre	Post	t-value
	Mean \pm SD	Mean \pm SD	
HR	71.65 \pm 8.27	84.65 \pm 6.39	14.58*
RT	0.322 \pm 0.07	0.49 \pm 0.13	7.90*

*Significant at 0.01 level

On comparing the pre and post psycho-physiological measurements (HR, RT) there was a highly significant difference obtained ($p < 0.01$). Thus it can be seen that there was decrement in the psycho-physiological measurements from pre exercise to post exercise period and exercise poses several physiological and psychological stress on an individual and ultimately causes fatigue to varying degree. The reaction times were significantly decreased during exercise. They were shorter at the end of exercise than at the beginning.

3.3 Urine Specific Gravity

Hydration status was assessed before and after exercise using dipstick method. The subjects were then classified into various levels of hydration. The results are compared with the standard values (Casa, Armstrong, & Hillman, 2002).



3.3.1 Pre hydration status

The pre hydration status showed that about 1/3 rd of the subjects (30%) were in the condition of significant dehydration. About 7 subjects were in the condition of minimal dehydration and 20% subjects were well hydrated. A point of concern was that about (15%) were in the condition of serious dehydration i.e. USG > 1.030. Therefore, a need for improved practices and knowledge was highlighted.

3.3.2 Post hydration status

Post hydration status (USG) was measured after 90 minutes of physical activity in both groups i.e. after the exercise session. The post hydration status presented a drastic change from the pre hydration status and an alarming situation for both the groups. The cases of significant dehydration increased from 30% to 50%, There was a steep rise in the cases of serious dehydration being doubled from 15% to 30% probably due to poor fluid consumption before, during and after exercise in uncontrolled and fluctuating temperature (hot and humid weather) and varying relative humidity.

3.4 Urine pH

Pre hydration status (pH) indicated that nearly 80% of the subjects were in the normal range of 6-7. However those in the level of mild dehydration were 20% .Although mild dehydration can hurt performance and therefore should be eliminated. Therefore there is a strict need for a fluid replacement strategy. Post hydration status (pH) was measured after 90 min of physical activity in both the groups. The post hydration status for both the groups showed a change. The cases of mild dehydration increased from 20% to 35% whereas condition in the normal range got worsened. The subjects in the normal condition dropped from 80% to 65%. The results are compared with the standard values (Sharma, 2007).



Table 4: Changes in mean Pre and Post hydration status

Parameter	Pre (Mean \pm SD)	Post (Mean \pm SD)	t value
USG	1.016 \pm 0.009	1.023 \pm 0.006	4.13*
pH	5.88 \pm 0.39	5.65 \pm 0.48	2.56**

*Significant at 0.01 level ** Significant at 0.05 level

There was deterioration in USG and pH post exercise in both the group.

4. Findings

Exercise and participation in sports results in enhancing physiological and psychological health and well being along with improving self-esteem and self-concept of an individual. However, potential harmful effects of dehydration are also closely associated with exercise induced stress. Dehydration can be elicited within an hour of exercise if the athletes enter the exercise session dehydrated. Ethical clearance was taken from the ethical committee for the conduct of the study.

Data analysis in the present study supports this fact as college athletes trained in hot and humid conditions turn up in dehydrated state. Hydration status of the college athletes was poor at the start of the exercise. Psycho-physiological parameters deteriorate with exercise, with or without fluid due to exercise induced stress that leads to fatigue. Paired sample t-test revealed a highly significant difference for parameters pre and post exercise ($p < 0.01$) revealing exercise induced fatigue and lowering of psycho-physiological parameters to varying degree.

However, the magnitude of deterioration can be decreased with improved fluid intake. Therefore, there is a need for implementing a hydration protocol for athletes realizing the importance of maintaining proper hydration status before, during and after the exercise session.

5. Suggestions

Some of the students were unwilling to participate in a few or more of the tests. Proper counseling, explaining and educating the health benefits



could have resulted in a larger sample. Due to paucity of time repeated data collection in hot humid condition was not possible. Studies in varying temperatures and humidity may also give a better insight into the psycho-physiological parameters covering areas of cognition, attention span and vigilance. In the present study, data was collected at a temperature between 30-35°C. An increase in the sample size will further highlight affect of different fluids on different psycho-physiological parameters. Also the effect of dehydration in sports and other common injuries should also be studied. Strategies for improving motivation level of athletes could help to avoid the deleterious effects of dehydration

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ETIOLOGY OF ELEVATED ANTHROPOMETRIC PARAMETERS IN YOUNG ADULTS

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Introduction

The American Heritage dictionary (2003) defines Obesity as condition of increased body weight that is caused by excess accumulation of fat (Gordon ,2004) . Anrig (2003) stated that obesity is abnormal body weight that is usually more than 20 per cent or above average weight for a particular age, height or bone structure.

Diagnosis of Obesity : Nafisa (2006) reported that , the most common clinical tool to define Obesity is increase in body weight that has been used since years. Obesity may be defined according to BMI, The BMI of a person is his weight (in kilograms) divided by square of his height (in meters).Obesity is defined as BMI > 29.9 kg/m². Every individual has certain fat percentage in the body and is determined by the number of fat cells in the body. Body Fatness for an adult woman ranges from 20-25 per cent of body weight with 12 per cent essential fat, however in adult woman essential fat includes fat in breasts, pelvic region and thighs. In adult men body fat is 18-20 per cent of body weight and approximately 8-10 per cent is essential fat (Krause, 1996).

Materials and Methods

Locale of study and Selection of the subjects : The study was conducted on young adults belonging to the cities of Kurukshetra and Delhi (NCR).



- 1) One thousand young adults between 18 - 25 years of age were selected from different localities and institutions, namely - Kurukshetra (Ladwa) and Delhi (NCR) region and Slimming centers belonging to these areas.
- 2) The height and weight of all the subjects were measured to find the Obese subjects among them.
- 3) From above the BMI was calculated by following the method of Quetelet (1835) and five hundred obese subjects were selected. The subjects were further divided equally into 250 male and female subjects. A subsample of 125 male and female subjects each was taken from different regions of Kurukshetra and Delhi (NCR).
- 4) All the selected five hundred subjects were (i) Obese with body mass index (BMI) of $> 29.9 \text{ kg/m}^2$ (ii) Free from any serious disease. (iii) Not following any dietary restrictions. (iv) The objective and experimental protocol of the study was explained to the subjects, and their prior consent was taken.

Development of Questionnaire : The general information, history of Obesity, Medical problem and Clinical signs, Dietary intake, Physical Activity pattern and Anthropometric measurements of the subjects were taken by developing the Questionnaire. The subjects were interviewed and interview cum questionnaire method was followed.

Measurement of Body Mass Index (BMI) : The BMI of a person is his weight (in kilograms) divided by square of his height (in meters). Obesity is defined as $\text{BMI} > 29.9 \text{ kg/m}^2$.

Measurement of Body Fat : The Body fat amount and percentage was measured by using a portable electronic machine (TANITA Body Fat Monitor). The information of the subjects about height, age and sex of the



subject was entered into the machine. The subject was made to stand erect, holding the machine firmly in both hands, arms being stretched at shoulder level, parallel to the ground. After 30 seconds the machine indicated body fat in kilograms as well as percent body weight, which was recorded. Another non portable machine called Body Composition Analyser (TANITA) was also used to analyse the body weight ,fat percentage, fat weight, muscle weight and a detailed report on a slip delivered by the machine. The reference value for fat weight in males was 15 -18 kgs while of females was 18 -22 kgs . Whereas the reference value of fat percentage in males and females was 20 -25 % and 15 -22 % respectively (WHO, 2000)

Results and Discussion:

Causes of weight gain in the subjects: The hereditary was found to be the cause of obesity in 48 and 44 per cent of the male subjects from Kurukshetra and Delhi (NCR) region respectively. As in case of female subjects of Kurukshetra and Delhi (NCR), 46.4 and 54.4 per cent respectively were prone to obesity due to genetic factors. It is reported that Genetics and DNA have been found to be a contributing factor for childhood obesity (Hiller.2003). Canberra (2003) stated that if both the parents are overweight or obese, there are 80 per cent chances of obesity prevalence in their children .So in the present study hereditary were found to be the major cause of obesity in the young adults.

Sharma (2003) observed that the young adults changed their native places for higher studies or for better job opportunities and these led to development of obesity due to irregular eating habits, sedentary lifestyle and other lifestyle modifications. Kellogs (2007) study supported the present study by stating that change in dietary habits and increased consumption of energy dense foods due to urbanization is one of major causes of obesity



among young adults. He further explained that the software industries, IT sector is working at night and the subjects were working in these sectors. Hence a disturbance in food intake as well as lifestyle was major cause of Obesity among the Young population. A high Glycemic diet, for example, a diet that consists of meals having high post prandial blood sugar causes a person to become Obese. Heavy consumption of sugary food raises blood sugar level which gets converted to fatty acids and makes a person overweight. Today the Young generation is more prone to eating out more frequently due to non availability of time and taste factors. Oken (2003) stated that body adiposity increases with age as the people grow older their metabolic rate falls and energy expenditure decreases so eating more frequently unhealthy food The obese Young Adults were ignorant about their eating habits and were eating whenever they found time to have food. An equal percentage of the male and female Obese subjects from Kurukshetra and Delhi (NCR) were having two meals per day.

The study indicated a positive correlation between Alcohol intake and Obesity in the Young generation. Due to modernization the Young generation is drawn more towards drinking habits. Nowadays it has become status symbol to take alcohol. Most of the subjects were eating junk or fast foods three times a week.

Anthropometric measurements of the subjects: The data for the weights, BMI and Fat Percentage of the subjects was collected from cities of Kurukshetra and Delhi (NCR). In all weights of five hundred subjects was taken. Then subjects were divided into 250 males and 250 females. The subjects were further divided into different age groups i.e. 18-19, 20-21, 22-23, 24-25 yrs.



Average body weight of the subjects: The mean difference of weight of males in the age group of 18-19 yrs, 24-25 yrs and 20-21 yrs was found significant at ($P \leq 0.05$) and ($P \leq 0.01$) respectively. The mean difference in increase of weight from the reference value of males of age group 20-21, 22-23 and 24-25 yrs of Kurukshetra and Delhi(NCR) was insignificant while the mean difference of males of 18-19 yrs of age was significant at 5 % level. The mean difference in the mean weight of female subjects belonging to Kurukshetra and Delhi of the age group of 20-21 yrs was found significant at ($P \leq 0.01$) while in other age groups the mean difference was insignificant. The mean difference in the mean increase in weight from the reference value of female subjects belonging to Kurukshetra and Delhi of age group of 18-19 yrs, 20-21 yrs and 24-25 yrs was found significant at ($P \leq 0.05$) respectively.

Body Mass Index of the subjects : BMI is calculated by dividing your Weight in kilograms by Height in meter square . A BMI of 25 to 29.9 is considered obese. The International Obesity Task Force (2002) proposed a different classification of obesity for Asians.

Table 2.1 IOTF - proposed classification of BMI

BMI Kg/m ²	Classification
< 18.5	Under weight
18.5 – 22.9	Normal Weight
23.0 – 24.9	At risk for obese
25.0 – 29.9	Obese I
> 30	Obese II



The mean difference of males of all age groups from regions of Kurukshetra and Delhi (NCR) was found non significant. The mean difference of BMI of females of all age groups belonging to Kurukshetra and Delhi(NCR) was found significant at 5% level.

Fat percentage of the Subjects: In the table no.4, the fat percentages of hundred males and hundred females were calculated. Fifty males were selected by purposive random sampling from Kurukshetra region and fifty from Delhi region (NCR) .In the same way the division of female subjects was done. In this study there was significant ($P \leq .05$) variation in fat percentage among the Kurukshetra and Delhi males except the age group of 20-21 yrs. In this study the mean difference of average fat percentage of females of age group 18-19 ,20-21 was non significant , while the mean difference of females of age group 22-23 and 24- 25 was significant at 1% level. In this study there was significant ($P \leq .01$) variation in the male subjects of age group 24 – 25 years, while increase in fat percentage from reference value among males of age group 18-19 ,20-21, 22-23 years of Kurukshetra and Delhi region was non significant. In this study there was significant ($P \leq .01$) variation in the female subjects of age group 20-21 and 24 – 25 years and the mean difference of average increase in fat percentage of females of age group 18-19 and 24-25 was non significant.

Summary and Conclusion

The subjects selected belonged to very different regions as well as environment. The epidemic Obesity is spreading in our young generation with the beginning of many diseases associated with it. The present study showed a positive correlation between the lifestyle and weight gain of the subjects. The subjects were more prone to night outs and alcohol intake that contributed to the increase in their fat percentage and BMI. All the



three anthropometric parameters were positively correlated as all of them showed increase from their reference value. The investigator followed interview cum questionnaire method with the subjects therefore a majority of male and female subjects were negligent towards nutritive diets, they were eating out frequently junk foods. Alcohol intake was common among both male and female subjects. The subjects were awake during the night and were away from their native place so they were eating easy available foods. Therefore a strong need of nutrition education and awareness of nutrition is needed among the subjects. The epidemic obesity would be controlled through right and guided awareness of nutrition.

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Table No. 2: Mean total body weight of young obese human adults belonging to Kurukshetra and Delhi (NCR) before the Commencement of weight reducing interventions

Age Group (yrs)	Males						Females					
	Kurukshetra			Delhi			Kurukshetra			Delhi		
	Weight (kgs) (N = 125)	Inc. in wt. from reference wt. (N = 125)	a/c	Weight (kgs) (N = 125)	Inc. in wt. from reference wt. (N = 125)	b/d	Weight (kgs) (N = 125)	Inc. in wt. from reference wt. (N = 125)	e/f	Weight (kgs) (N = 125)	Inc. in wt. from reference wt. (N = 125)	g/h
18-19	90.4+1.9 (n = 35)	18.14+2.5 (n = 35)	.42*	90.3+2.3 (n = 32)	8.28+2.9 (n = 32)	0.29*	93.8+10.4 (n = 32)	22.3+5 (n = 32)	0.364	96.4+11.9 (n = 28)	20.9+5.5 (n = 28)	0.29*
20-21	95.10+8.7 (n = 38)	20.8+4.2 (n = 38)	3.04**	87.2+9.6 (n = 38)	18.5+2.3 (n = 38)	0.005	94.5+7.7 (n = 37)	21.3+3.7 (n = 37)	2.8**	85.8+8.9 (n = 30)	21.9+5.15 (n = 30)	0.58*
22-23	95.92+14.1 (n = 27)	19+2.33 (n = 27)	0.039	89.2+7.43 (n = 25)	21.4+5.14 (n = 25)	0.031	92.6+9.57 (n = 28)	23+4 (n = 28)	0.642	93.9+10.7 (n = 35)	21.4+3.28 (n = 35)	0.015
24-25	91.6+10.6 (n = 25)	22.3+4.32 (n = 25)	0.68*	90.5+8.92 (n = 29)	23.3+5.20 (n = 29)	0.44	94.8+12.3 (n = 28)	25.8+4.0 (n = 28)	0.872	95.9+12.2 (n = 32)	25.7+4.3 (n = 32)	0.89*

ns non significant

** Significant value at ($P \leq 0.01$)

* Significant value at ($P \leq 0.05$)

N = total number of the subjects of all age groups n = number of subjects of each age group

wt. weight Inc. - Increase



Table No.3: Mean total Body Mass Index (BMI) of young human adults belonging to Kurukshetra and Delhi (NCR) before the commencement of weight reducing interventions

Age Group (yrs)	Males				Females				(c)/(d) T-value
	Kurukshetra		Delhi		Kurukshetra		Delhi		
	BMI (a) (N = 125)	Grades of obesity	BMI (b) (N = 125)	Grades of obesity	BMI (c) (N = 125)	Grades of Obesity	BMI (d) (N = 125)	Grades of obesity	
18-19	34.7 ± 2.70 (n = 35)	1	36.2 ± 2.52 (n = 30)	2	35.5 ± 2.06 (n = 32)	2	35.2 ± 2.06 (n = 27)	2	0.785*
20-21	35.7 ± 2.50 (n = 38)	2	36.5 ± 2.61 (n = 35)	2	36.1 ± 2.29 (n = 38)	2	36.5 ± 2.25 (n = 34)	2	0.543*
22-23	36.2 ± 2.71 (n = 27)	2	35.7 ± 2.57 (n = 28)	2	35.6 ± 3.57 (n = 27)	2	37 ± 2.9 (n = 29)	2	0.115*
24-25	39.3 ± 1.9 (n = 25)	2	38.6 ± 2.25 (n = 32)	2	38.3 ± 3.79 (n = 28)	2	38.9 ± 2.11 (n = 35)	2	0.468*
N	Total number of subjects of all four age groups				n				number of subjects of each age group

* significant value at 5% level

**significant value at 1% level

NS Non Significant

BMI - Body Mass Index



Table No.4: Mean total fat percentage of male and female young adults belonging to Kurukshetra and Delhi (NCR) before the commencement of weight reducing interventions

Age Group (yrs)	Males						Females					
	Kurukshetra			Delhi			Kurukshetra			Delhi		
	Fat % (N=50)	Inc. in fat % from reference value (N=50)	Inc. in fat % from reference value (N=50)	Fat % (N=50)	Inc. in fat % from reference value (N=50)	Inc. in fat % from reference value (N=50)	Fat % (N=50)	Inc. in fat % from reference value (N=50)	Inc. in fat % from reference value (N=50)	Fat % (N=50)	Inc. in fat % from reference value (N=50)	Inc. in fat % from reference value (N=50)
	(a)	(b)	(c)	(e)	(d)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
18-19	33.5±2.23 (n=15)	14.44±1.85 (n=15)	38.3±1.11 (n=13)	15.16±1.95 (n=13)	4.8*	0.30*	34.7±1.68 (n=13)	19.3±4.23 (n=13)	30.1±2.23 (n=12)	12.8±1.33 (n=12)	0.001	0.65*
20-21	33.83±1.99 (n=12)	15.16±2.36 (n=12)	36.9±1.56 (n=11)	16.8±1.69 (n=11)	.003 ^{NS}	0.06 ^{NS}	32±2.14 (n=14)	11.8±1.23 (n=14)	31.4±1.2 (n=15)	11.8±4.03 (n=15)	0.35*	4.6**
22-23	34.3±4.81 (n=11)	12.18±1.16 (n=11)	35.9±2.11 (n=15)	15.36±.92 (n=15)	0.3*	0.72*	33±2.48 (n=11)	9.09±2.34 (n=11)	32.4±5.03 (n=12)	12.76±2.29 (n=12)	6.4**	0.0001
24-25	31.4±1.25 (n=12)	9.96±1.41 (n=12)	40.4±1.88 (n=11)	18±.2.37 (n=11)	3.4*	7.2**	31±.603 (n=12)	11.10±1.23 (n=12)	37.1±3.23 (n=11)	13.1±2.18 (n=11)	8.4**	1.1**

N - Total number of subjects of all four age groups n - number of subjects of each age group

**significant value at 1% level *significant value at 5%

NS - Non Significant

Inc. - Increase



Table No. 4.1: Causes of Weight gain in the obese subjects (n = 500)

Population Characteristics (1)	Response (2)	Number & Percentage			
		Male		Female	
		Kurukshetra (n=125) (3)	Delhi (n=125) (4)	Kurukshetra (n=125) (5)	Delhi (n=125) (6)
Obesity since childhood or hereditary	Yes	60 (48%)	55(44%)	58(46.4%)	68(54.4%)
	No	65(52%)	70(56%)	67(53.6%)	57(45.6%)
Due to place change	Yes	82(65.6%)	76(60.8%)	74(59.2%)	69(55.2%)
	No	43(34.4%)	49(39.2%)	51(40.8%)	56(44.8%)
Night Shifts	Yes	22(17.6%)	95(76%)	60(48%)	112(89.6%)
	No	103(82.4%)	30(24%)	65(52%)	13(10.4%)
Eating out	2-3 Times/ Week	72(57.6%)	83(66.4%)	68(54.4%)	65(52%)
	> 3 Times week	53(42.4%)	42(33.6%)	57(45.6%)	60(48%)
Irregular Meals	2 meals per day	52 (41.6%)	48(38.4%)	52(41.6%)	49 (39.3%)
	3 meals per day	41(32.8%)	35(28%)	53(42.4%)	52(41.6%)
	> 3 meals per day	32(25.6%)	42(33.6%)	20(16%)	24(19.2%)
Alcohol Intake	3- 4 times/ week	116(92.8%)	118(94.4%)	12(9.6%)	57(45.6%)
	Occasionally	9(7.2%)	7(5.6%)	16(12.8%)	40(32%)
	No	-	-	97(77.6%)	28(22.4%)
Eating Fast / Junk foods	Once a week	25 (20%)	22 (17.6%)	31 (24.8%)	30 (24%)
	2-3 times a week	73 (58.4%)	80 (64%)	65 (52%)	77 (61.6%)
	More than 3 times a week	27 (21.6%)	23 (18.4%)	29 (23.2%)	18 (14.4%)



THE GLOBAL HR MANAGER

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Introduction:

In these times of internationalization and globalization, international human resource management is becoming an important concept for human resource practitioners to be aware of and to practice. This is vital for human resource managers in multinational corporations and international joint ventures, and also for domestic based human resource managers who import staff from overseas. In order to keep up with the pace, human resource managers will have to have a global vision on how to manage their people effectively both at home and abroad. Managing international human resources enables a business to compete more successfully in the world market place and is an excellent developmental tool for its employees.

A human resources manager oversees all aspects of workforce development and management for his employer, ensuring the company is appropriately staffed. While responsibilities vary on a day-to-day basis, he regularly serves as a primary point person for all issues related to employee activity. The human resources manager works with executive management to ensure the most appropriately qualified employees are positioned in the most appropriate roles. When hiring needs arise, he develops a job description, advertises for the position and screens and interviews applicants. He also performs background checks, contacts references and invites other executives to be part of the interview process to ensure a

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good fit with a new employee. When a new employee is hired, the human resources manager draws up the necessary contractual paperwork and asks the employee to fill out pertinent tax documentation forms. Human resource professionals maintain a productive environment by ensuring that employees have the skills and knowledge to accomplish job tasks. They make arrangements for training courses that enable employees to get the proper credentials for performing their function. This also ensures that companies adhere to all government regulations. For example, all companies must be certain that employees follow the standards for that assure a safe and healthy workplace setting. In Europe, work councils composed of both employers and employees might mandate training not covered by other trade union agreements. When an employee quits or is fired, the manager conducts an exit interview, issues a final paycheck and makes arrangements to file final tax paperwork on the employee's behalf. He takes possession of the employee's keys, codes and access passes prior to finalizing the termination of employment. Unless the company has a training manager on staff, the human resources manager is responsible for conducting new employee orientation. This involves going through an employee manual, explaining corporate policy and procedure and introducing the new employee to fellow staffers. He also issues office equipment, keys and identification and computer passwords. In the event a dispute arises between colleagues, employees and managers, the human resources manager serves as mediator. He may counsel each party individually, or together, and develop a compromise solution that is acceptable to everyone involved. If there are allegations of misconduct, he recommends disciplinary action, and documents all interactions in employee files. The executive division of a company relies on the human resources manager to keep tabs on changes to employment law and to assist in long-term strategic staffing

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plans. He consults with upper management about staffing needs, is involved in retaining consultants and independent contractors and represents the employer in recruiting venues. As companies become more international, human resource professionals have become more generalist. They tend to know less about day-to-day, internal operations and focus more on ensuring personnel work effectively together as teams. They care about competitive advantage, profitability and economic survival during tough financial times. Their role may have been restricted to hiring employees, managing benefits and handling disciplinary action in the past, but human resource professionals now deal with controlling health care costs, reducing employee attrition and participating in the community, as well. International human resource managers have found that employee relations vary significantly from country to country and that the strategies used to motivate workers in one country are sometimes useless in another country. One study found that Chinese employees expected lifelong employment and also welfare provisions such as paid sick leave, meals, healthcare and schools. Although this view has been changing since the late 70's, many people have entrenched ideas of what a typical employment relationship should involve. Traditional expectations will often surface when it comes to the employment relationship; it is debatable whether the international human resource manager should try to change these views or not. Barthelme believes the following: "The intangible cultural fit between western organizations and their off shore outsourcing opportunities in areas such as employment work ethics, expectations for long-term relationship development and job-specific commitment is equally significant to organizations in order for them to bring such practice to long term success"

A central theme in the literature reflects "a strong socio-psychological and welfare concern which echoes the not ion of 'adjustment'.

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“Effective international managers were said to be those who were adaptable, flexible, open-minded, speaking in foreign languages, and making friends with those of many nationalities”. Thus when a company’s business representative is going overseas to explore a new region it is a challenge for that person to adjust to a new lifestyle, language, conditions of employment or different ways of operating human resource activities. Failure to adjust is often unacceptably high. Gomez-Mejia et al (2004: 329) report comparatively high failure rates (as evidenced by a premature return) among US expatriates of 20-40 %, which is roughly three to four times higher than those experienced by European and Asian companies. This is attributed to two generations of US economic dominance and a ‘colonial mentality,’ but specific causes of failure appear to be career blockages, culture shock, lack of pre-departure cross-cultural training, overemphasis on technical qualifications, getting rid of a troublesome employee and family problems. When a business intends to expand to an overseas market, human resource managers need to utilize human capital in order to conduct the business more efficiently and effectively. Human resource managers could consult local representatives of an overseas business regarding: local culture, employment aspects, safety, customs and traditions in order to operate in harmony with a local company’s procedures. For example, women may have a different status in business in other countries compared to the home country (New Zealand, in this case). In Dubai, as in all Islamic countries, foreign women are not allowed to be employed. Therefore, this will affect human resources international recruitment strategy, not only for the employees, but also for wives of its expatriates. Different ethical and business standards can also lead to negative experiences. In New Zealand, employees are required to adhere strictly to legal and ethical requirements, but in some overseas countries corruption or bribery are

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considered to be the norm and are acceptable. As companies in almost every industry stake a large portion of their growth plans on global expansion, the precision and consistency with which they approach talent management capabilities, HR policies and leadership development must increase. Attracting and retaining skilled workers, stabilizing the labor force in a new market, increasing productivity, structuring an organization so that credible and competent leadership is placed in the right locations, fashioning a culture that is consistent but also accommodates local differences—these are now the activities and competencies that are critical to success. For a company to execute globally, its governance structures must allow more decisions to be made locally in areas into which it is expanding. The company must create processes and ways of working that encourage innovation at the local level; this is especially critical in industries for which understanding consumer tastes and preferences within a distinct market is important. Equally important, leaders must be drawn not only from where the company has historically done business but also from areas where there is significant market potential. Processes and governance structures should be redesigned to put more decision making into the hands of managers in those new markets.

In order to manage employees in overseas situations it is important to receive up-to-date feedback and to measure their performance appropriately. This would reduce the risk of future costly mistakes, such as paying for failed employees' recruiting and training costs. "The main requirement in achieving the measurement of training and development payback is for human resource professionals to ensure that line managers view training and development as a means of improving their operation and helping them to achieve their objectives and solve problems". The standards of evaluation and measurement would vary, compared to



'domestic-based' human resource management. When companies go global and set up their business in overseas markets, it is the human resources department's responsibility to manage their human capital.

Diversity of board makeup is also important. The board of directors at MasterCard, for example, includes executives from the United Kingdom, India, the United States, Mexico, Belgium and Hong Kong. Philip Morris International Management's board includes members not only from the United States and Europe but also from Mexico and China. These leadership structures reflect a company's global character and market intentions rather than its more parochial origins.

Leadership development is also critical; the next generation of executives needs to be exposed to other cultures and receive training in global management. The Moore School's Julian Dalzell defines "When you are living and working in a different culture, you have to test all your assumptions about how the world works. You gain critical experiences by being exposed to people, policies, laws, norms and human motivation from different places around the world."

An inability to be forearmed against this could create inner conflicts and impair the expatriate's performance. Years ago, human resource professionals in traditional small business settings focused on completing administrative tasks, such as recruiting and hiring personnel, often without input from department managers. As companies become more global, human resource professionals act as business partners to interview and orient new employees to the workplace. A complex business operation typically requires specialized personnel, so human resource professionals must work cooperatively with managers on the production lines. Human resource professionals who support international business operations

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typically must to ensure that diverse teams work well together. By conducting team-building workshops, promoting acceptance of cultural diversity and motivating employees to achieve strategic goals, they help their company build strong teams. By recognizing that in some countries individual recognition plays a larger role than others, human resource professionals can create awareness about how teams can function effectively across borders to maintain company profitability.

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