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EDUCATIONAL RESEARCH JN KERALA

C. Naseema

In India, educational research has grown over a period of six decades since the first Ph.D. in education was accepted by Bombay University in 1943. It has undergone careful nurturing during the last five decades. Only a sound system with strong knowledge base can meet the challenges of societal expectations of education. The four previous NCERT surveys of research in Education provide ample evidence of cross sectional studies.

In Kerala, educational research has been carrying out mainly through the three universities i.e., Kerala University, University of Calicut and Mahatma Gandhi University. Of these, Kerala University has made a significant contribution to educational research.

As on January 1999, the number of Ph. D.s in Education produced by the Universities **of** Kerala are presented in Table 1.

Table 1
Number of Ph.D.s in Education produced by the Universities

University	Number of Ph.D.s
1. University of Kerala	125
2. University of Calicut	48
3. Mahatma Gandhi University	3
Total	176

QUANTITATIVE PICTURE OF PH.D**.S IN** DIFFERENT AREAS OF EDUCATION

The effort to classify educational research invariably involves overlapping and results in vagueness, confusion and controversies. So in this article a multi-classification system is accepted to enable classification of a study into more than one category if needed since in most of the studies a unilateral classification may arise confusion.

AREA WISE REVIEW

The reviewed Ph.D.s in Education has been classified into 27 areas as indicated in Table 2.

Table 2

Number of Studies under Different Areas

Sl. No.	Area	Number of studies	Sl. No.	Area	Number of studies
1	Philosophy of education	6	14.	Language eo-:at :-	14
2.	History of education	6	15.	Mathematics &a~cation	4
3.	Sociology of education	8	16.	Science education	9
4.	Comparative education	4	17.	Educational tec--; zz.	2
5.	Economics of education	3	18.	Achievement s~z •'=:::- -e.ated to achievement	39
6.	Psychology of education	13	19.	Special education	2
7.	Teacher education, teaching, teacher behaviour and models of teaching	12	20	Higher education	7
8.	Educational management and addiministration	1	21.	Creativity	9
9.	Non-formal education	7	22.	Women education	3
10-	Eariy childhoold education	1	23.	Sex education	1
11.	Vocational and technical education	2	24.	Wastage and stagnation	2
12.	Tests and instruments	2	25.	Education of the disadvantaged	7
13.	Curriculum, methods and	12	26.	Arts education	2
			27.	Health education and physical education	3

The general trend shown by the studies under each area is described below:

Philosophy of Education

India has a rich tradition of philosophical thought. However, 6 studies were completed at **the** Ph.D. level in Kerala. Two of the studies are related to the philosophy of Swami Vivekananda. Educational Philosophy of the poet Tiruvalluvar and Sri Narayana Guru as **a** social educator were also studied.

History of Education

Six studies were carried out under this area. The general trend was to undertake micro level studies which provide information regarding the history of an educationally relevant topic.

Sociology of Education

Research in this area is related to the socio-cultural and economic conditions, family pattern etc. of a particular **group,** superstitious beliefs and social attitudes of a particular community. 8 studies in this area were awarded Ph.D. in Education,

Comparative Education

Only four studies were conducted under this area. This may be due to the problem of collecting cross-cultural data even within India due to language problems and financial constraints. However, comparative study of teacher education programme of select developed and developing countries and comparative study of secondary school science curricula **of** Kerala and Tamil Nadu are **mBnion** worthy here.

Economics Education

Education in Kerala and the development of human resources, economic change in Kerala and problems of financing of education

were the areas covered by the three studies conducted in the economics of education.

Psychology of Education

Thirteen studies were related to the psychological variables such as child behaviour, intelligence, learning, personality, achievement motivation, adjustment, mental and emotional health etc. Some of the researchers prepared their own tools for measuring these variables while others accepted the available standardised tools.

Teacher Education, Teaching, Teacher Behaviour and Models of Teaching

Twelve studies were conducted under this area. The studies covered topics like teacher competence, teacher burnout, role expectations, role performance, personality characteristics of teachers, creative methods in teaching and different models of teaching.

Educational Management and Administration

Administration of school education in the state of Kerala is the only study completed under this field.

Non-formal Education

Seven studies, completed under the non-formal education, covered topics like adult education programme, folk arts as a medium of non-formal education, functional literacy programmes and training programmes for non-formal education workers.

Early Childhood Education

The only one study conducted in this area was an analytical study of social development of nursery school children.

Vocational and Technical Education

Pattern of occupational choices of secondary school pupils and secondary school dropouts, enquiry into the working education programme are the areas covered by the two studies completed.

Tests and Instruments

Only two studies are purely based on the construction and standardization of tests. But in most of the other studies, the researchers developed a large number of measuring instruments in the area of intelligence, aptitude, attitude, teacher behaviour, interest etc.

Curriculum, Methods and Textbooks

Main topics selected by the 12 studies related to this area are the content analysis, evolving of curriculum or textbooks, and critical analysis of the syllabus.

Language Education

Fourteen studies are coming under this category. The studies are related to diagnostic studies of errors in Hindi and English, language skills, proficiency in language components, evaluation of teaching materials in Malayalam, acquisition of mother tongue in different social groups, difficulties in learning Arabic and Hindi, language development of socially disadvantaged groups, comparison of basic structures in English with that in Malayalam etc. Also, a study conducted in M.G. University developed communicative learning materials in English for increasing functional operation of productive skills among secondary school students of Kerala.

Mathematics Education

Four studies conducted under this area were related to conceptual errors in learning, formulation of criteria for writing textbooks and evaluation of mathematics textbooks, mathematics

achievement, teaching mathematics etc.

Science Education

Cognitive and affective outcomes in biology, teaching of biology predictors of achievement in science, impact of creative methods of teaching on the attainment of higher objectives in science, science interest are the topics selected by the nine studies belonging tc science education.

Educational Technology

Effectiveness of programmed learning materials anc appropriate instructional technique for development of scientific skills are the two major studies carried out.

Achievement and Factors Related to Achievement

Majority of the studies reviewed belong to this category. 39 studies were conducted in Kerala related to achievement and its related factors. It can be seen that the researchers continue in this field despite the fact that the findings of such studies have no direc practical relevance.

Special Education

Only two studies were completed in special education. One oi them was about Juvenile delinquency and the other about the inferiority feelings in pupils with body defects and without bod defeots.

Mrgher Education

Seven studies, which were completed in this field, covered the conduct and organization of Institutions engaged in higher educatior multidimensional analysis*of the situational potentialities of educatior history and development of higher education in Kerala, developmer of optional models of chemistry curricula at college level and needs and problems of college students.

Creativity

Creativity in learning English, factors discriminating high and low creative students, creativity of student teachers in relation to certain other variables, psychological and socio-familial correlates of creative behaviour, values and attitudes of creative children, personality characteristics of creative pupils, overlap of creativity with some cognitive and affective variables etc. were touched by the nine studies conducted in this area.

Women Education

History and development of education of women, enquiry into learning needs of illiterate women to evolve curriculum, role of women in formal and nonformal education in Kerala are the important studies carried out.

Sex Education

The only one study conducted in this area was the identification of sex related problems of adolescents in the colleges of Kerala and their perception of sex education.

Wastage and Stagnation

Study of the causes and correlates of wastage among scheduled caste pupils of the primary stage and study of the efficiency of certain measures adopted for preventing wastage and stagnation in the schools of Kerala are the two studies carried out under this area.

Education of the Disadvantaged

The areas covered by the seven studies conducted in this field are: education of the tribal pupils, causes leading to the backwardness of scheduled castes and scheduled tribe pupils, causes of wastage among scheduled caste and scheduled tribe students, problems faced by certain tribal pupils, study habits and achievement of culturally deprived pupils, socio-cultural and educational conditions of adivasis etc.

Arts Education

Youth festivals and institutional music climate in schools and colleges of Kerala, comparative analysis of music education with its implication for improved music education in India are the two studies conducted in arts education.

Health Education and Physical Education

Influence of health status on achievement of primary schools, practices of physical education in the colleges, food habits of secondary school children were the studies of this area.

CONCLUSION

It can be seen that minimum number of studies has been carried out in the areas of educational management and administration, early childhood education and sex education. Many studies have been conducted in the area of achievement and factors related to achievement. The trend shown by the reviewed studies demands more studies should be conducted in innovative techniques of teaching and learning, computer education and educational technology.

TEACHERS' ACCOUNTABILITY

Dost Mohammed Khan

Accountability is to do one's duty, to perform, observe, fulfil, adhere to, acquaint one self of an obligation. Accountability is a responsibility, a self-imposed' moral o b l i g a t i o n a 'bounden duty'. Like other disciplines say medicine, law, etc. education also has ethical standards and a teacher feels morally obliged to perform his duties honestly to the best of his ability.

THE CONCEPT OF ACCOUNTABILITY

The accountability concept in education has been borrowed from technological and economical worldview and from the business management, engineering and science. Lessinger has strongly supported accountability in education. He said that each child has a right to be taught what he needs to know in order to be productive, contributing citizen. Every citizen has right to know what educational results are being produced for the expenditure incurred. He further insisted on the fact that the educator must guarantee the acquisition of basic skills to all children regardless of their background. In fact he has described teachers a s ' educational or human engineers'. Lessinger and Liberman define the teacher accountability in terms of concrete and measurable achievements, the students, basic skill of reading, writing, communication and computational skills. In a broader sense, it covers cognitive, affective, and psychomotor growth of children. This is a measure of adequacy of their efforts. In case the children show low achievements, the teachers should feel responsible and accountable. Being accountable has two dimensions: accountability for the tasks entrusted to them and the accountability to those who entrust the tasks.

The concept of accountability has been made more popular after the National Policy on Education, 1986 in India. Evaluation and accountability are interrelated terms in education. The evaluation

of the programme outputs in education provides the necessary ground to account for its activities to society. The students or their parents are concerned about the systems output and its external productivity. The movement of accountability has resulted in three forms:

1. What has been happening as a result of technological imperative to adopt the procedures of educational performance criteria, behavioral objectives and assessment techniques?

2. How we are reinforcing as a result of technologic value system based on pseudo scientific ethos?

3. How we are perpetuating an economic status quo?

In the present situation, teachers are concerned mostly to the units of the curriculum they are assigned to complete. They are not fully aware of the quality of teaching procedures and learning attainments. They feel as if it is the responsibility of the system anc experts. It is because who is accountable to whom in the educatior is not adequately laid down. There are so many loopholes in GRs or ordinances and rules governing the services of the teachers anc thereby accountability is totally destroyed.

REASONS FOR DECREASE IN ACCOUNTABILITY

1. It is a general feeling that controls and commitments have **ber** reduced in all sectors of work like government departmer banks, religion, etc. Education is no exception to that. Therefc there is decrease in accountability in all these sectors includ education.

2. The components of rights and benefits of teachers have be-emphasized much more than the duties and obligations teachers. The benefits and revisions of pay have been giver the teachers a number of times, where as, the code of condi supervision of teachers role and insistence on teaching, *resee* and extension responsibilities of teachers have been ha' emphasized. There is an imbalance.

3. The work culture in many institutions has deteriorated. The working hours are reduced every day be adding the list of holidays Non availability of non-teaching staff, library and laboratory staff and the auxiliary staff on 2nd and 4th Saturdays as holiday affect the teaching, research and extension work. The lesser hours of work result in decreasing accountability.

4. There is non-availability of certain criteria or norms and standards to evaluate the accountability of teachers. The teachers themselves are not aware of the accountability of their profession.

5. The supervision of teaching and learning are not undertaken in a realistic manner. The routine confidential reports, the routine yearly and semester examinations, the routine meetings at various levels, keep ongoing. Very few of these measures contribute to increase accountability in education.

AREAS OF TEACHERS' ACCOUNTABILITY

The areas where teacher's accountability is needed are:

1. Teaching (lectures, tutorials, practical, workshops, seminars).

2. Research (output and outcome, publications)

3. Co-curricular activities (student services, organisation and governance of institution etc.)

4. Examination and evaluation (academic achievements of the children).

5.. Moral and ethical values.

6. Resource mobilization.

7. Effective and optimum utilization of resources.

8. Purchase and utilization of equipment, books, journals and teaching aids.

The teachers should know the areas mentioned above so that they should not dissociate themselves from the system and should feel accountable in achieving maximum in the areas mentioned. There should also be assessment and evaluation of the accountability of the teachers. Some sound methods and means to assess the

teachers' accountability should be found and self-evaluation methods involving certain agencies be stressed. The methods for the assessment of Accountability may be as follows:

METHODS FOR THE ASSESSMENT OF ACCOUNTABILITY

internal Methods

Under this category several persons who may be the regular observers of the activities of the teachers may be included. They may be: the head of the institution, the head of the department, fellow teachers, students, and persons from the management. They may evaluate the performance of a teacher taking into consideration the areas, like teaching, research output and outcome, co-curricuiar activities, moral and ethical values, social activities and citations and awards received.

External Methods

External evaluation can be performed through agencies like National Assessment and Accreditation Council and by various professional bodies. National Policy on Education (1986) has alsc recommended that norms of accountability should be strictly foilowec with incentives for the good performance and disincentives for non-performance.

Self-evaluation of Teachers Themselves

Teachers can ask these questions themselves. How much time he devotes to academic activities? How much time he devotes ir the library? How many tutorials, workshops, seminars he has attended during the year? How many project reports he has writte- during the year? What is academic achievement of his students' Has he organized co-curricular activities? Has he delivered ar lecture on values, morality etc? How much useful he has been I creating academic atmosphere in the class as well as in the schoc college/department.

The above methods may prove fruitful and may develop

consciousness among the teachers for accountability in their professions. But at the same time certain measures should be adopted to enhance accountability so that the teachers feel at par equal with the status quo, the persons in other professions enjoy.

MEASURES FOR ENHANCING ACCOUNTABILITY

1. The accountability can be increased if he recruiters of job are also the educators. To select the personnel for industrial, educational, civil service and other jobs educators should be involved.

2. Skilled and trained personnel should be selected for refinement and relevance for every job. Eligibility for various jobs and entries to formal education need to be upgraded so that better qualified persons could be hired. Unless professionalism or commitment to job is developed during the pre-service and in-service education, the accountability will not improve.

3. Guidance and supervision of teachers of teachers and administrators to up keep the standards of education and to bring curriculum improvement is worth while. The seminars and workshops partly do this job but they are sporadic. A regular programme to guide and supervise teachers and administrators can increase the accountability in education.

4. In present situation teaching has been neglected or at least, teaching is not rewarded and recognized. Promotions, public honours, and rewards are on basis of research performance. Thus, when teachers are not recognised for their teaching excellence, teaching suffers from lack of accountability, lack of credibility. Illuminating the teaching activities of the teachers will make teachers more responsible and interested in their teaching assignments.

CONCLUSION

The accountability in teaching has declined over the years. The laxity of administration is perhaps the first reason for such a sad decline. The second reason is the attraction that activities like research projects have lured the teachers to do research and underestimate

teaching. The third reason is that the students are inclined to get degree with little motivation to learn.There are no valid and reliable tools of assessment to evaluate teacher's work which have been designed. There are no agencies, which should assess the teacher's work. Improvement in the above aspects may enhance accountability of teachers. However, teacher alone can not be responsible for students' good performance nor he should take credit for students' good performance. A number of other factors are involved: the level of intelligence and achievement of students, the encouragement and support the parents provide for students' education, school conditions, expectations of teachers and parents etc.it must be remembered that a teacher who is conscious of dignity and integrity of teaching profession, who is hardworking and interested in teaching job, who feels one with the system of education, who enjoys teaching, and with sympathy towards the students and their parents can only be accountable to his/her job.

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EFFECTS OF SOCIO-ECONOMIC STATUS ON ACADEMIC ACHIEVEMENT

Bhujendra Nath Panda

Whatever the purpose and object of education, academic performance is undoubtedly considered as its vital aspect/During the recent years concern of academic performance at all educational levels has considerably increased. In one's life, academic success is highly valued as all intellectual capabilities of an individual. A scientific analysis of the factors related to academic achievement can not only reduce the vital educational evils like backwardness and stagnation but also can ensure its qualitative and quantitative growth. Although there are different cognitive and non-cognitive factors affecting the academic achievement of the school population, it can be said that socio-economic status is one of the non-intellectual factors. It seems to be the most important and relevant factor, which affect much of the scholastic achievement of students. Socio-economic status means the position that an individual of a family occupies by means of his or in her income, education, occupation, cultural possession and participation in the group activity of the community. It is also noticed that differences in financial capacity, yielded by various occupations, probably create differences, in the kinds of opportunities provided for the child's development.

A number of studies have been conducted in India and abroad on the relationship between socio-economic status and academic achievement. Mishra et al (1960) found that children coming from high home environment achieve better in school than their counterparts. Singh (1977) found that scholastic achievement of high income family students were significantly better than low income, low caste and tribal family students. Shah and Sharma (1984) observed that highly significant positive relationship exist between the variables of family climate and academic achievement. Similarly, researches conducted by Lincoln (1969), Srivastava et al (1980) and in many other researches it has been noticed that there is a positive relationship between socio-economic status and academic achievement. Whereas, Jain (1965),

Meller (1977) and Venkatiah (1980) etc. found that there is no significant relationship between academic achievement and socio-economic status. Thus, it is evident from the review of researches that the obtained results with regards to the influence of socio-economic condition on scholastic achievement are not in agreement and conflicting in nature. Hence, in the present study, the effects of socio- economic status on scholastic achievement of school going children are studied.

OBJECTIVES

The following are the objectives of the present study.

1.   To investigate the differences in the academic achievement of upper, middle and lower socio-economic status group of students

2.   To ascertain whether different socio-economic status groups of urban areas differ in their achievement scores from those of rural areas.

3.   To find out the difference in academic achievement of boys anc girls at different levels of socio-economic status.

HYPOTHESIS

It is hypothesized that there exists a significant difference ir academic achievement at different levels of SES, of boys and girls and in urban and rural areas of school going children.

METHODOLOGY

Sample

The sample of study included 300 students of Class-VIII c different secondary schools of Orissa. On the basis of random samplic 150 from urban and 150 from rural areas were selected.

Tools

For assessing the levels of socio-economic status of the childre: SES scale of Kuppuswmy's (urban and rural) was used and on th basis of M+1SD high, middle and low socio-economic groups wer- made. In order to know their academic achievement, last examinatic marks obtained by the subjects were taken from the school records

On the basis of the socio-economic status scale, the following grouping was made.

Table -- 1

	Urban	Rural	Total	Boys	Girls	Total
IHigh SES	40	30	70	50	20	70
2 Middle SES	60	45	105	70	35	105
3. Low SES	50	75	125	80	45	125
Grand Total	150	150	300	200	100	300

RESULTS AND DISCUSSION

In order to analyse the significance of difference in mean scores of academic achievement of high, middle and low socio-economic status groups of rural and urban areas, necessary statistics were calculated. The obtained result has been presented in the following table.

Table-2

Result of ANOVA on Academic Achievement of High, Middle and Low SES Students

Sources of Variation	Sum of Sources	df	Mean Square	F-ratio	Level of Significance
Between Groups	936.65	2	468.33	8.15	0.01
Within Groups	17076.24	297	57.49		
Total	18012.89	299			

Table-2 shows that there exists significant difference in academic achievement of the different SES groups. This means that the SES of student affects academic achievement. To know at which level these differences lie, T test was applied.

It was found out that academic achievement scores do not differ

between high and average group and average and low group but differ with high and low groups. This clearly reveals that there is influence of socio-economic condition of the family on academic achievement of the pupils.

Table-3

Summary of ANOVA of SES and Areas of living on Academic Achievement.

Sources of Variation	Sum of Squares	df	Mean Square	F- ratio	Level of Significance
SES	2231	2	1115	6.80	0.01
Areas of Living	306	1	306	1.87	NS
SES Areas	2622	2	811	4.94	0.01
Error (SSW)	43240	294	164		

From the analysis, it was found out that the ma effect of SES and interaction on academic achievement was four significant. To know at which level these differences lie, T test Wc applied and it further indicated that academic achievement of h : SES differed significantly from low SES and all other groups were' significant. Similarly, it was also noticed that urban upper SES stude^ obtained a higher score in academic achievement than urban a rural low SES students, and rural upper SES students differed frc lower SES rural students. This means that there is a definite impac SES on academic performance of urban aBd rural students.

Table-4
Summary of ANOVA **of SES and Sex on** Academic Achievemer

sources or Variation	bum of Squares	Of	Mean square	h-ratio	Level: Signifies
SES	1948	2	974	5.39	OX
SEX	421	1	421	2.29	N:
SES X SEX	1837	2	918	4.99	0.C
Error (SSW)	54233	294	184		

From Table-4, it was noticed that the main effect of SES and interaction was significant To know at which level these difference lie, T test was applied. It was revealed that academic achievement of HSES was different from LSES and HSES boys were different from LSES boys in their academic achievement.

CONCLUSION

On the strength of the above results, it can safely be concluded that there is a definite impact of SES on academic achievement. The comparison of high and middle, and middle and low SES groups showed that there is no significant difference in academic achievement. Rather the two groups have similar, characteristics and equal performance in academic achievement but high and low SES students differed significantly. This situation might have occurred either due to the low status occupation, income and education of the family members and education of children is therefore seen as not being a necessity. The present study while gets support from the earlier studies of Ofohibika (1985), Ajeh (1991), Panda (1991) at the same time it contradicts the findings of Ahluwaiia and Deo (1978), Venkataiah (1980) and Sood (1990). The high SES families can afford to provide all essential materials like recommended textbooks, adequate school uniform, fees and levies and other required educational materials at the time of need which stimulate the children to learn and make them feel secured and anxiety free. This, most probably, makes them perform to the best of their ability.

Similarly, in both urban and rural areas as regards to academic achievement, the upper SES students have done significantly better than the lower SES group. This gives emphasis on the importance of SES in respect of the scholastic achievement of students. The students who either belong to urban or rural lower SES group are faced with many adverse circumstances. They are not encouraged properly to do home work given by school, to go to school regularly and to take examination seriously as a result of which the lower class child develop negative attitude towards school and his motivation is correspondingly low. Thus, lack of interest on part of the parents and unfavourable environmental compulsions at home

hinder the scholastic progress of students. The earlier findings of Singh (1977), Sundaram (1989), and Panda (1991) support the present study.

Lastly, it was also noticed that boys belonging to high SES group achieved significantly greater than boys of low SES did. The earlier findings of Rath et al (1979) and Verma and Gupta (1990) support the present study. As regards the findings of girls, it was revealed that there is no difference in academic achievement of high, middle and low SES students. While the study of Shah and Sharma (1984) and Jagannadhan (1986) contradict the present findings, the results of Jain (1968) and Verma and Gupta (1990) are in agreement with the present one. This situation might have occurred either due to their sincerity towards learning or to compete with high SES student to remove their inferiority complex.

It is important therefore for the school authorities to be aware that the socio-economic background of children has some influence on the academic achievement. Hence, the school authorities and those who are involved in the process of education in the school should see that low SES children could be provided free extra lesson after school, guidance and counselling services and other basic necessities for improving their scholastic achievement. On the other hand, the parents of low SES also need to develop positive attitude towards education of their children. They should be vigilant and alert and unhesitatingly approach the local authorities for free supply of essential educational requirements for education of their children. Then only, a sense of security and satisfaction will emerge in the minds of low SES children, which is indispensable for enhancement of their academic work.

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ENVIRONMENTAL LITERACY OF SCIENCE AND NON-SCIENCE STUDENTS AT DEGREE LEVEL

Ayishabi, T. C.

INTRODUCTION

Till recently man was unaware of the fact that his technology is creating environmental imbalance, but now we have come to realize that earth's resources are finite and, hence, are to be preserved and the ecological balance maintained.

Since the present problems of exploiting environment result largely from ignorance and indifference, creating awareness among people of how man's functions and activities affect environment is inevitable. Never before has the future of life on earth rested so much in human hands as in the recent decades with scientific, technological and ecological advancement. Now none of us can afford to be apathetic towards environment.

Now a days some efforts have been done (Monthly Public Opinion Survey, 1989, Economic Times, 1990) to conduct survey about environmental awareness among the public. The results showed that more than 60 percent of the people are extremely concerned about the hazards to environmental balance. Interestingly it was also noticed that while women are more concerned compared to men, the older generation forges ahead than the younger ones.

It is very pathetic to notice that younger generation of India is much behind in the concern for environmental balance, for the hope for sincere action rests of them. It is therefore felt necessary to study the environmental literacy of college students at degree level, especially as a comparison between the science and non- science students. 'Environmental Literacy, in the study, stands for the combination of 'awareness of environment', 'attitude towards

environment' and 'reaction towards environmental issues'.

OBJECTIVES

1. To find out difference in environmental literacy and the three components of it between science and non-science students at degree level.

2. To find out the difference in environmental literacy and the three components of it between students of different subjects under science group and non-science group.

SAMPLE

As more topics related to environmental education are present in the curriculum of final year degree students, only final year degree students were selected for the study. It was decided to give representation of science and non-science students in a 1:1 ratio in the sample.

The students of Botany and Zoology together as Biology students and Chemistry were selected to represent the science group as in all these courses environmental education gets a vital place. So it was assumed that they would be fit to represent the science group. Mathematics and physics students were avoided, as they were not getting any direct information about environment from their curriculum. So including them along with the students mentioned previously would have been injustice.The students of Commerce, English and History were selected as the representatives of the. non-science group. This selection was to get one class from the Business group (Commerce), one from Languages (English), and one from the social sciences group (History). Thus, all faculties of the non-science group had been given representation and due importance in the sample.The final sample thus consisted of 200 science and 200 non-science students comprising a total of 400 final year degree students. Each group of the science and non-science categories came up to more than 50. The sample was selected from four colleges affiliated to the University of Calicut. Due representation was given to sex typing locale, and efficiency level of the institutions.

TOOLS

The tools used in the study were the Environmental Liter. Inventory (Ayishabi and Narayanan Kutty, 1991). The conten; the inventory pertains to seven sections of environmental educatk namely, nature, health and hygiene, ecological relationship, poilutic deforestation, land usage, and population. The inventory had thre sections, each section measuring the concerned component Environmental Literacy, namely, Awareness of Environment, Attitud towards Environment and Reaction towards Environmental Issues Each section contained 25 statements thus totaling to 75. The inventory had a validity of 0.61 with the marks obtained in the main subject of (N=60) and a split-half reliability of 0.86 (N=60).

ANALYSIS OF DATA

The data on the variable was analyzed using the test of significance of difference in means between the comparable groups and interpretations were made using conventional procedures.

RESULTS AND DISCUSSION

As per the first objective the data were analyzed to find out the difference in Environmental Literacy and its three components between the science and non-science students. The data and results are in presented in table 1.

Table 1

Comparison of Science and Non-Science Students for Environmental Literacy and its Components

Variable	Science Students (N=200)		Non-Science Students (N=200)		Critical Ratio
	M1	SD1	M2	SD2	
Environmental Literacy	200.49	13.35	193.49	14.13	5.09
Awareness	66.28	4.99	63.96	4. 89	4.70
Attitude	66.83	5.45	64.45	6.47	3.98
Reaction	67.49	5.38	65.27	5.48	4.09

** indicates significance at 0.01 level.

Table 1 shows that the CR value for the comparisons of all the foir variables between science and non-science students are significar at 0.01 level. The higher mean of all the variables are associate: with the science students. Thus the study proves that the science students have better Environmental Literacy than the non-sciencf students and that the science students are better aware about the environment, have better attitude towards environment, and the have better modes of reactions towards environmental issues tha the non-science students.

The comparison of the four variables between the Biology ar Chemistry students was done; the details of which presented Table 2.

Table 2

Comparison of Biology and Chemistry Students

Variables	Biology Students (N=120)		Chemistry Students (N=80)		Critical Ratio
	M1	SD1	M2	SD2	
Environmental Literacy	200.95	21.39	199.81	14.18	0.46
Awareness	66.75	4.32	65.54	5.79	1.59
Attitude	67.12	5.28	66.8	5.48	0.40
Reaction	67.85	5.20	67.0	5.44	1.09

Table 2 shows none of the CRs obtained is significant pro\ that the Biology and Chemistry students are alike in Environmental Literacy and its all components. This may be bece. both these groups learn topics on environment as a part of tl curricula and, therefore, would have developed adeqi knowledge, attitude, and the related competencies.

Table 3 shows the data and results of the comparisons c˙ four variables between English and Commerce students.

Table 3

Comparison of English and Commerce Students

Variables	English Students (N=59)		Commerce Students (N=80)		Critical Ratio
	M1	SD1	M2	SD2	
Environmental Literacy	199.78	13.54	194.72	11.93	2.30*
Awareness	65.95	4.45	63.85	3.48	3.02**
Attitude	66.71	6.15	65.70	6.20	0.90
Reaction	67.35	5.55	65.53	5.53	1.83

- indicates significance at 0.05 level
- Indicates significance at 0.01 level.

Table 3 shows that there is difference between English and Commerce students in their Environmental Literacy but it is due to the difference in awareness of environment only. The groups do not differ in their Attitude and Reaction towards environmental Issues. Table 4 contains data and results of comparison between English and History students.

Table 4

Comparison of English and History Students

Variables	English Students (N=59)		History Students (N=58)		Critical Ratio
	M1	SD1	M2	SD2	
Environmental Literacy	199.78	13.54	185.45	13.92	5.64**
Awareness	65.95	4.45	62.02	6.26	3.91**
Attitude	66.71	6.15	60.53	5.41	5.77**
Reaction	67.35	5.55	63.24	4.38	4.36**

indicates significance at 0.01 level.

All the CRs obtained in the comparison of English and History students are found to do significant at 0.01 level. The higher mean for all the variables are attached with the English students. So

these results show that the English students surpass the Histc students in all aspects of Environmental Literacy.

The results of the comparison between Commerce and Histc students for the four variables are given in table 5.

Table 5

Comparison of Commerce and History Students

Variables	Commerce Students (N=59)		History Students (N=58)		Critical Ratio
	M1	SD1	M2	SD2	
Environmental Literacy	194.72	11.93	185.45	13.92	4.12**
Awareness	63.85	3.48	62.02	6.26	2.02*
Attitude	65.70	6.20	60.53	5.41	5.30**
Reaction	65.53	5.53	63.24	4.38	2.74**

indicates Significance at 0.05 level.

Indicates significance at 0.01 level.

Table 5 shows that there is significant difference in all the variables between Commerce and History students. Higher me are associated with the Commerce students for all the varia: Therefore, it may be the concluded that the Commerce students better environmentally literate than the History students are.

The findings of the study show that the science students better than the non-science students in Environmental Literacy ar components are. All the science students are similar in their lite' but among the non-science students, it is the history students wh: the least environmentally literate. English students have b€ awareness of environment compared to the Commerce student: in the other components the groups are alike.

IMPLICATIONS

The study had proved that the students from the science g- to whom we are giving content about environment directly, a' more environmentally literate compared to those of the non-sc:e

group who do not receive any direct environmental education. This is the condition even at the final stage of bachelor degree courses. The implication there is that proper environmental education should be given to all students compulsorily. Then only the young generation, on whom the future of nature rests, can be made aware of environment and problems it meets. On such correct awareness rests the development of proper attitude and reaction readiness towards solving environmental issues. The study, therefore, recommends to incorporate necessary components of environmental education in the curricula for all courses at all levels and to adopt appropriate strategies for their transaction. The attempts currently taken by the UGC by offering projects for identifying and including environmental components and preparing study materials on them at different levels are highly appreciable.

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A STUDY OF SUPERSTITIOUS BELIEFS OF SECONDARY SCHOOL CHILDREN OF KERALA IN RELATION TO DELAYED GRATIFICATION

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INTRODUCTION

Superstitions are generally defined as irrational fear of tfa unknown (Edward 1976). Many studies have been attempted to stuc the source of superstitious beliefs. Studies have found that the pee group influences the development of superstitious belief more tha home (Muiler and Lundeen 1933, Thimotheose 1973). According; Plug (1975) superstitions beliefs are established mainly by a proces of persuasion and expectancies for external control of reinforcemer This substantiates the view of Skinner 1948) who opined the superstitious beliefs arise out of past experiences.

In this study an attempt is being made to investigate t' relationship between the Delayed Gratification (DG) and Superstitic. Beliefs. One's Delayed gratification refers to the capacity of an individi to defer immediate pleasure-giving activities for tasks that are mc instrumental to the attainment of one's goals. An individual with a hi: level of DG is more likely to postpone pleasurable activities like gor to movie for other activities or like preparing for a forthcomr examination. Such an individual gives priority to realization of goa set ahead. Only a person with a high level of Goal Perception *ci* exhibit high DG (Mathew 1979). A person who is prepared to for sa all pleasures for goal-oriented tasks exhibits a higher level of adjustme (Roberts and Erikson 1968). It has been reported that delayers ha high decision making capacity (Herzherger 1978). This study a attempts to analyze the influence of different types of superstitic beliefs on high low DG group.

THE PROBLEM

It has been generally believed that a strong belief in

supernatural stems from a low level of education (Askevis-Leherpeux; 1990). Studies have revealed the importance of education in minimizing superstitious beliefs. It is generally assumed that delayed gratification is influenced by the superstitious beliefs. The purpose of the present was to analyze the level of superstitions of high and low DG groups.

OBJECTIVES OF THE STUDY

The study had the following objectives:

1. To identify the levels of DG of secondary school children.

2. To identify the levels of superstitions of secondary school children.

3. To study the Superstitious Beliefs scores (SBs) of High and Low DG group with respect to superstitious beliefs related to body-part (SB-B), Superstitious Beliefs related to animals (SB-A) and superstitious beliefs related to home (SB-H).

4. Jo compare the means of total Superstitious Beliefs scores (SBs-tot) of High and low DG group with respect to SB-B, SB-A and SB-H.

5. To study the degree of relationship between levels of DG and superstition.

HYPOTHESES

The following Hypotheses were formulated for the study:

1. There will be no difference in the levels of DG of secondary schoolchildren.

2. There will be no difference in the levels of superstitions of secondary school children.

3. There will be no significant difference between high and low DG groups with respect to SB-B, SB-A, and SB-H.

4. There will be no relationship between levels of DG and levels of superstitions.

METHODOLOGY

The method employed for thew study was "Normative Survey". The sample used for the study comprised of a representative group of 560 secondary school children of Kerala, selected on the basis of

stratified random sampling technique. The following tools were used for the study

1.   Delayed Gratification *Scale.*

2.   Superstitious Belief *Scale*

3.   General Data Sheet

The Delayed Gratification Scale was a standardized tool developed by *John and Abraham* (1978). The scale was scored by a pre-prepared scoring key. The Superstitious *Belled Scale comprised ofal\stof37 Superstitious Beliefs scored against a three-point scale. Certain Superstitious Beliefs Incorporated* in the Superstitious Inventory developed by Thimotheose (1*973)^/as also Included* in the superstitions Beliefs *Scale.* The *Scale consisted* of 3 type of Beliefs relating to the following three categories:

1.   Superstitious *beliefs pertaining to body parts* (SB-B).

2.   Superstitious beliefs pertaining to animals (SB-H).

3.   Superstitious beliefs pertaining to home (SB-H).

The Scale was scored using a pre-prepared scoring key. The main Superstitious Belief *score* (SBs) for the 3 categories namely SB-B, SB-A and SB-H were calculated to get SBs-B, SBs-A and SBs-H respectively. The separate scores obtained for the above three categories were combined to get the Total Superstition Belief Score *{SBsAot).*

IDENTIFICATION OF LEVELS OF DG AND SUPERSTITION

A frequency distribution table was constructed *based* on the DG scores. The sample was classified *Into High and* Low DG groups based on the mean (m) and standard deviation (S.D) of the distribution. Similarly, a *frequency distribution table* was constructed *based* on the superstition scores. The sample was classified into High and Low superstition groups based on the mean and standard deviation of the distribution.

IDENTIFICATION OF HIGH AND LOW GROUP

The procedure adopted for identifying the High and Low *delayed gratification groups and* High and Low superstitious groups is detailed below.

Identification of Delayed Gratification Level

The sample was classified into three delayed gratification (DG) levels; high, average and low delayed gratification (DG) levels. The classification was done in terms of the delayed gratification scores. Assuming a normal distribution of delayed gratification scores, the conventional procedure of using sigma distances for dividing the sample was used. Those subjects whose DG fall between (m- *c* and m+a) was classified as average DG group. Those subjects whose score was below (m-a) were considered as low DG group, while subjects whose scores were above (m+cr) were designated as high DG group.

Identification of Superstition Levels

The sample was classified into the three superstition levels; high, average and low superstition levels using the same procedure adopted for identifying DG levels.

Estimation of Mean Superstitious Belief Score Based on SB-B, SB-A and SB-H

The mean superstitious Belief scores of SB-B, SB-A and SB-H was calculated for High and Low DG groups. The t-value was estimated to test whether significant difference between the means exist for the three categories of superstitious beliefs.

RESULTS AND DISCUSSION

Table -1

Identification of Levels of Delayed Gratification
of Secondary School Children

Groups of DG	Number	Percentage
High DG	173	30.89
Average DG	321	57.32
LowDG	66	11.79
Total	560	100.00

Table - 2

Identification of Levels of Superstition of Secondary School Children

Group	Number	Percentage
High	162	28.93
Average	207	36.96
Low	191	34.11
Total	560	100.00

The results in Table I show that only 30.89 percent of the subjects fall in the high DG group. Other fall either in the average DG group (57.32%) or low DG group (11.79%). With respect to superstition levels it is found that 34.11 percent of the subjects fall in the Low superstitions group. Others fall in the High (28.93%) or Average (36.96%) superstition groups (Table 2). The result shows that there exists significant difference between high and low DG groups with respect to SB-B. The t-value obtained is found significant at 0.05 level of significance. It can also be found that the low DG group had a higher mean superstition belief score with respect to SB-B.

There is no significant difference between high and low DG groups with respect to B-A. The t-value in this case was found not significant at 0.05 level of significance. Thus, the influence of Animal-related superstitious beliefs on both high and low DG groups is more or less equal. Similarly, high and low DG groups do not differ significantly with respect to SB-H. The t-value obtained is not significant. The low DG group was found to be more superstitious with regard to SB-H and SB-B. In the case of SB-A, the high DG group was found to have a slightly higher mean superstitious score.

The comparison of means of total superstitious belief score of high and low DG group showed significant difference, with the high DG group being less superstitious than the low DG group (Table3).

Table - 3

Comparision of Mean Superstition Belief Scores of High and Low DG Group

Mean and SD of	Mean SB Belief Scores			
DG Groups	SB-B	SB-A	SB-H	SB-T (Total)
Mean 1 (MI)	10.73	15.66	23.70	56.09
Mean 11 (M2)	12.35	14.68	32.20	59.23
S D I	07.36	05.64	08.78	06.73
S D II	04.59	04.36	09.28	10.3
t-Value	02.04	01.43	01.89	02.30

Table - 4

Degree of Relationship Between Levels of DG and Superstition (Frequencies)

Group	High SB Group Above (M+SD)	Average SB Group Between (M+SD&M-SD)	Low SB Group Below (M-SD)	Total
High DG	17(50)	89(64)	67(59)	173
Average DG	102(93)	106(119)	113(109)	321
Low DG	43(19)	12(24)	11 (23)	66
Totai	162	207	191	560

(Figures in parentheses *Indicate* expected frequencies)

Results in Table- **4** reveal that the X^2-Square value obtained (66.36) is significant there by rejecting the nul! hypothesis. It can aiso be noted that there are wide discrepancies between the observed and expected frequencies. The observed frequency of low DG group exhibiting high superstition was more than the expected value. Similarly the observed *frequency* of high DG group showing low superstition was more than the expected frequency. This reveals that the two variables Delayed Gratification and Superstition bear a negative relation.

CONCLUSIONS AND POLICY IMPLICATIONS

The study reveals the personality characteristic of the superstitious person. Even in this modern age superstitions persists among the young. The low DG groups were found to have a higher level of superstitious beliefs related to body-parts. This suggests that the low DG group children are more hindered by SB-B, which further indicates that, they are more obsessed with beliefs pertaining to physical appearance. Animal-related superstitious beliefs were found more popular with high DG group indicating a greater influence of such beliefs on high level of DG group. It is necessary that the student community possess a high level of DG, since a high level of DG reflects firm perception of one's goals and determination to achieve one's aim in life. Therefore it is necessary that a high level of DG be built up at the cost of superstitious beliefs harboured within.

The findings of the study suggests that there exits a negative relationship between the variables DG and Superstitious beliefs. The observed frequency of pupils with high DG and low superstition exceeded the expected frequency, suggesting a negative relationship between the variables. It can be suggested that by minimizing superstitious beliefs, the level of delayed gratification can be enhanced.

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PROFESSIONAL GROWTH OF PUBLIC, CENTRAL AND GOVT. SCHOOL TEACHERS

Manjeet Kaur
and
Pushpinder Kaur

A teacher has to perform many roles like teaching, research, extension activities, development of instructional material, administration, student counselling, and acquisition of expertise in his own subject. Every institution expects a good performance by a teacher as it is linked with the task of maintaining and coordinating the standard of teaching. The various factors which influence the quality of education and its contribution to the national development are the quality, competence and character of teachers. It is also necessary to consider the assessment by students as they instantly evaluate their teacher

The success of any educational programme depends upon the performance of the teacher, whether it is primary school education or secondary education or higher education. The effectiveness with which the teachers play their role is very decisive factor. The National Policy on Education 1986 (Ministry of Human Resources Development Govt of India, 1986) has rightly observed that no people can rise above the level of its teachers. In the national Policy it is stressed that the Govt and the community should endeavor is to create conditions, which help to motivate and inspire teachers on constructive and creative lines. Teachers should have the freedom to innovate to devise appropriate methods of communication and activities relevant to the needs and capabilities of the concerns of the community and that the will continue to play role in the formulation and implementation c educational programme.

Patankar In 1997, emphasized the techniques to make the learning more effective and joyful. In 1998, Arora and Panda four: the quality of the teachers which creates excellence in all walks of \:~

under the heading of Teacher Education at the Crossroads.

To the best of our knowledge no research has been undertaken on the professional growth of private, public and central school teachers. So a pilot study was designed to know the professional growth of government, central and public school teachers.

OBJECTIVES

1 .To examine the professional growth of public school teachers.

2.To reveal the professional growth of Central school (Kendriya Vidyalaya) teachers.

3. To find out the professional growth of Govt, school teachers.

4. To compare the professional growth of the teachers of Govt., Central and Public Schools

HYPOTHESIS

The Govt., Central and Public school teachers do not differ significantly with respect to their professional growth.

SAMPLE

The study consisted of 26 teachers from Govt, schools, 23 from Central schools and 20 teachers from public schools of Patiala.

TOOLS

The questionnaire consisting of 15 items was prepared for school teachers. Items were related to methods of teaching, workshop, refresher courses, Behaviour towards colleagues, students and their parents, social needs and discipline etc

Statistical Techniques Used

To test the significant difference in the professional growth of Govt., Central and Public schools teachers, Chi- square test was

applied.

Table-I
Difference between Government, Central and
Public school Teachers

Sr. No.	G.N.T.		C.S.T		P.S.T.		X^2
	Y	N	Y	N.	Y	N	
1.	10	16	16	7	12	8	5.01
2.	18	8	20	3	10	10	14.25
3.	17	9	3	20	15	5	19.16
4.	21	5	21	2	16	4	1.15
5.	20	6	22	1	20	0	7.86
6.	25	1	22	1	20	0	0.85
7.	24	2	7	16	20	0	17.48
8.	14	12	19	4	14	6	3.57
9.	25	1	18	5	0	20	40.36
10.	26	0	20	3	14	6	9.00
11.	20	6	14	9	9	11	4.92
12.	18	8	14	9	5	15	7.41
13.	20	6	20	3	20	0	5.28
14.	26	0	23	0	20	0	0.00
15.	26	0	23	0	16	4	10.45

Y - Yes   N -   No

G.S.T. -   Government, school Teachers

C.S.T. -   Central school Teachers

P.S.T -   Public school Teachers

RESULTS

The findings of the study are:

1.   There was no significant differences in the information given regarding availability of journals or magazines related to the subject in the school by the teachers of Government, Central and Public schools, X^2 value being 5.01.

2.   The results indicated that there was significant difference with regard to the facility of getting leave to increase their professional

qualifications, X^2 value being 14.25, which is significant at .01 level.

3.   With regards to obtaining special increment after professional growth there was significant difference in the information given by teachers of Government, Central and Public Schools, X^2 value being 19.16, which is significant at .01 level.

4.   To find the motivation given by the principals for such additional qualification to teachers, there is no significant difference in the information of teachers of all schools, X^2 being 1.15.

5.   The results revealed that there was significant difference in the information given by the teachers regarding change in the methods of teaching after additional qualification, X^2 being 7.86 which is significant at .05 level.

6.   To find the change in teaching skills, the results show that there was no significant difference in information of the teachers of different schools, X^2 value being 0.85.

7.   So far as any improvement in education by using teaching aids, the results revealed that there was significant difference in the information given by the teachers of Government, Central and Public Schools, X^2 value being 17.14, which is significant at .01 level.

8.   With regards to the workshop facility in schools, the results show that there was no significant difference, X^2 value being 3.57.

9.   The results showed that there was significant difference in the information regarding attending the refresher courses in different schools, X^2 value being 40.36, which is highly significant at .01 level.

10.   To find any diange in their behaviour towards students after additional qualification, the results indicate that there was significant difference in the information of all teachers, X^2 value being 9.00 which 1ssignificant at .05 level.

11.   With regards to the change in the behaviour of parents, the investigators found no significant difference in the information

given by Government, Central and Public school teachers X^2 value being 4.92.

12. The results revealed that there was significant difference among Govt, Central and Public school teachers with regard to the change in the behaviour of colleagues, X^2 value being 5.2S which is significant at 0.05 level.

13. So far as job satisfaction is concerned, there was significan: difference in the three different school teachers, X^2 being 5.28 which is significant at 0.05 level.

14. With regard to the awareness of new social needs no significan: difference occurred among Government, Central and Public school teachers.

15. The results indicated that there was significant difference amon: the three groups of school teachers with regard to students discipline, X^2 value being 10.45 which is significant at.01 leve

Table 2

Percentages of Government, Central and Public School Teachers Pertaining to their Professional Growth

Sl. No.	G.S.T.	C.S.T.	P. ST.
1.	38	69	60
2.	69	87	50
3.	65	13	75
4.	80	91	80
.5.	77	95	100
6.	96	95	100
7.	92	30	100
8.	54	82	70
9.	96	78	0
10	100	87	70
11	77	61	45
12	69	61	25
13	77	87	100
14	100	100	100
15	100	100	80

Table-II shows that Central schools are taking more care of the professional growth of teachers as they provide more *magazine* in the libraries and their teachers get leave to increase their professional growth.   To increase the additional qualification, Public schools get special increments, but no such incentive is given to Centra! schools. So far as principals are concerned, in all types of schools, they fully motivate the teachers to increase their professional growth. Only 30 percent *Central* school teachers use more teaching aids after increasing their additional qualification. The facility of workshop is more provided in Central schools. No refresher courses is found in public schools. The change in the behaviour of Govt, school teachers, with colleagues, students and parents has been found after professional growth, but it is not true in case of the teachers of Central or Public schools. Public school teachers are fuily satisfied with their jobs. All the teachers of different schools are absolutely aware with regard to their social needs and discipline.

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EFFECTIVENESS OF ADVANCE ORGANIZER MODEL FOR TEACHING OF CONCEPTS IN ECONOMICS

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and

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INTRODUCTION

Teaching is an activity, which is designed and performed for the attainment of a larger number of objectives in terms of changes in pupil behaviour. Pupils who have varied personalities need different styles of learning. The common implication of both these facts is that the teacher should use such strategies of teaching which would match the instructional objectives, as well as, pupils' learning styles.

Due to lack of information about different teaching strategies in our country, teachers are unable to adopt the appropriate methods of teaching. That is why in educational institutions, there is a big gap between theoretical knowledge and actual teaching practices. To bridge this gap, teachers should provide different types of teaching strategies which exist in the form of teaching models.

The models approach to teaching was first described by Joyce and Weil (1972) who defined a model of teaching as, *———a pattern or plan that can be used to shape curriculum or course, to design instructional materials, and to guide teachers' actions."

In teacher education, there is one view that every teacher should adopt single model pattern. In reality no teacher can follow this single model pattern, because no model of teaching is designed to accomplish all types of learning or to work for all learning styles. To bring qualitative changes in our education, we should implement faithfully these models in our classroom teaching with certain modifications.

The scope of research in this field is very vast. A large number

of studies have been undertaken in which models of teaching have been used for teaching and training of teacher-educators and student-teachers. Such strategies have been evaluated by Armstrong (1.910), Richmond and Quereshi (1964), Ausubel (1968), Brar (1985), Grewal and Kaur (1987), Grewal and Kaur (1988), Kaur (1990) and Kaur (1995) have evaluated such strategies.

The present study is an attempt to compare Ausubel's Advance Organizer model and traditional method of teaching for concepts in economics. The achievement of the learners was evaluated on the basis of their scores on the criterion test.

HYPOTHESIS

The following null hypothesis was tested through the study: There is no significant difference in the effectiveness of Advance Organizer model and traditional method of teaching for teaching of concepts in Economics.

DESIGN

In this study, pretest-post test quasi-experimental design was followed. Two groups of subjects were matched on the basis of age, sex and socio-economic status. The sample of 80 students was taken from Government Victoria Girl's Senior Secondary School, Patila. All the students divided into two sections A and B were included in the sample as such. Sections A and B were renamed as Group A and Group B respectively. Group A was treated as experimental group and was taught through Ausubel's Advance Organizer Model. Group B was treated as control group and was taught through the traditional method of teaching.

TOOLS AND TECHNIQUES USED

H.C.Sharma's Socio-Economic Status Scale (1979) was used to match the groups.

The topic "Demand and Supply" was selected and two different lesson plans were prepared. The teaching task was executed in two

weeks to both the groups simultaneously.

A criterion test was constructed to evaluate the initial and terminal behaviour of the students. All the questions set in the test were objective-oriented. The test consisted of forty-four questions, carrying a total of forty-four marks. The time to complete the test was fixed at one hour.

The t-ratio was used to analyze the achievement scores of the students in both the groups.

ANALYSIS AND INTERPRETATION OF DATA

The initial behaviour of both the groups of the sample was evaluated on the basis of scores of subjects in each group in the criterion test (pre-test)

Table 1

Significance of Difference Between Means for the Scores on Pre-test of Experimental and Control Groups with respect to Criterion Test in Economics

Group	N	Mean	SD	T-ratio	Level of Significance
Experimental	40	16.75	4.36		
Control	40	17.58	3.60	1.01	Not significant

It is clear from Table 1, that no significant results were noticed (t= 1. 01, P. 05). The mean difference between the experimental and control group, which came out to be 16.75 and 17.58 respectively, did not exhibit significant variation. Hence, no difference has been noticed in the initial behaviour of both the groups.

The terminal behaviour of both the groups of the sample was evaluated on the basis of gain across of subjects in each group in the criterion test. Gain scores were calculated by subtracting pre-test scores from the post test scores of the subjects in each group.

Table 2

Significance of Difference between Means for Gain scores of Experimental and Control Group with respect to the Attainment of Concepts in Economics

Group	N	Mean	SD	T-ratio	Level of significance
Experimental	40	13.08	6.31		
Control	40	5.40	3.77	6.61	Significant at .01 Level

The results of Table 2, show that the subjects of the Experimental and the Control groups differed significantly with respect of their gain scores (t = 6.61; P .01). The mean trend also indicated that students belonging to experimental group exhibited better achievement in the learning of concepts in economics as compared to their counterparts in the control group.

Conclusion

The results indicate that there is significant difference in the effectiveness of Ausubel's Advance Organizer model and traditional method of teaching. So the hypothesis that there is no significant difference in the effectiveness of Ausubel's Advance Organizer model and traditional method of teaching for teaching of concepts in economics, is rejected. This leads us to the conclusion that there is significant difference in the effectiveness of Advance Organizer model and traditional method of teaching for teaching of concept in Economics.

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A COMPARATIVE STUDY OF EFFECTIVENESS OF METHODS OF TEACHING ON ACADEMIC ACHIEVEMENT FOR SCIENCE TEACHING

S.M. Ghetiya

INTRODUCTION ~ ~

At present, explosion of knowledge is being achieved through the development of science and technology. As a result of this *many instruments and methods of teaching are added* in *educational* field. Education is *main problem* of *today.* Due to expansion of education problems are also increased. Today's *main problem* is classroom teaching. To make classroom teaching more effective educationists, psychologists and philosophers are trying their level best. The researcher had worked on the present study for the same purpose. So the present *study* was conducted to *find* out for effectiveness of methods of teaching on academic achievement for science teaching.

OBJECTIVES OF THE STUDY

The present *study* was conducted with the following objectives

1. To prepare lesson planning for the teaching of unit Pressure' in science of std. VIII through Lecture method.

2. To *prepare lesson planning* for the teaching of unit Pressure' in Science of std. VIII through Demonstration method.

3. To construct and standardize Linear Programme for the teaching of unit Pressure[7] in science of std. VIII through *Programmed Learning Method.*

4. To *study comparative effectiveness of the* methods - Lecture method, Demonstration method and Programme learning method with reference to student's Academic achievement

HYPOTHESES

In order to examine objectives of the *study statistically* the

investigator constructed null hypothesis in the following way.

1. There will not be any significant difference in the mean achievement score of the students learning through Lecture method and Demonstration method.

2. There will not be any significant difference in the mean achievement score of the students learning through Demonstration method and programmed learning method.

3. There will not be any significant difference in the mean achievement score of the students learning through Programmed learning method and Lecture method.

VARIABLES INVOLVED IN THE STUDY

Teaching method was independent variable in the present study. Three levels - Lecture method, Demonstration method and Programmed learning method were decided under this variable. As effectiveness of the teaching method was to be decided with reference to student's academic achievement of unit "Pressure" in Science of std. VIII as dependent variable. Variation such as school environment, learning time, content, contemporary events and sex were controlled under the present study. Newness of experiment, interactions between the groups, individual differences like intelligence, aptitude, attitude, achievement motivation, personality, socio-economical status, reading ability, reading habits etc. of the students were considered as intervening variables.

LIMITATIONS OF THE STUDY

The present study was undertaken with the following limitations.

1. The present study was experimental research design; therefore only three classes of std. VIII of one Gujarati medium school of city area were taken.

2. The sample of the present study included only girls, *o   results cannot be totally applicable to other schools.

3. For the purpose of post-test, teacher made test was used. Standardized test was not used for the purpose.

4. ft was not possible to control variables like newness of experiment, interactions among groups and individual differences.

5. In Demonstration method as many experiments as possible were covered in the planning. Yet some experiments could not be demonstrated. They were taught through pictures.

6. The sample was taken, as it is on the basis of convenients. So it was purpose sample.

POPULATION AND SAMPLE

The population for the present study involved students of std. VIII of Gujarati medium secondary school of Gujarat State.

Sample of the present study comprised of 158 girls of Kadavibai Verani Kanya Vidyalaya. Three groups were taken, as it is on the basis of convenience. So it was purposive sample. 45 girls were taken for Lecture method, 56 girls were taken for Demonstration method, and 57 girls were taken for Programmed learning method.

RESEARCH DESIGN

From true-experimental designs, Two group post Test only' design was selected for the present study. Three levels of independent variable were taken in the present study. For that purpose three groups were taken. So design was converted in Three Groups Post Test only Based on purposive Sample[1].

TOOLS USED

In order to measure effect of independent variable on dependent variable, the investigator constructed an objective test on unit 'Pressure' in science of std. VIII. The test comprised of 30 marks and it was not standardized.

CONSTRUCTION OF TEACHING MATERIAL

In order to achieve objectives of the present study following teaching material was produced by the investigator. Lesson Planning

was prepared for the teaching in said unit through Lecture method and Demonstration method. Linear programme for the teaching in said unit were constructed and standardized.

TECHNIQUE OF ANALYSIS

t-Test was used to examine significant difference between the means of three groups.

ANALYSIS AND INTERPRETATION OF DATA

At the end of the experiment, data gathered through post-test is presented by t-Test in following table.

Table

Groups for comparision	Mean	Conbined SD	SED	Fonded t-Value	Significant t-Value from table at .05 and .01 level	Significant Level for founded t-Value
Lecture mehtod (Group-1)	19.53	4.87	0.97	1.41		Not-signifi-cant for Gr. 1 & 2
Demonstration Method (Group-2)	18.16	4.40	0.83	4.46	1.96 & 2.58	Siginificat at .01 level for Gr. 2&3
Programme Learning Method (Group-3)	14.46	4.29	0.86	5.90		Significant at .01 level for Gr. 3&1

FINDINGS OF THE STUDY

Following findings emerged after the interpretation of the data.

1. Lecture method and Demonstration method were found equally

effective for classroom teaching.

2. Demonstration method was found more effective than Programmed learning method for classroom teaching.

3. Lecture method was more effective than Programmed learning method for classroom teaching.

EDUCATIONAL IMPLICATIONS

The present study indicates the following educational implications:

1. Lecture method was found most effective. This implies that if subject teacher is particular, personalitical, master of subject knowledge, with pre-lesson planning, it should be most effective. For eagerness and newness of students technological equipment should be used.

2. Demonstration method was found more effective. This implies that along with Lecture method, science should be taught through Demonstration to the students. If possible, any convenient individual experiment can also be made. For this purpose, the school should possess technological equipment.

3. Programmed learning was found considerably less effective. Programmed learning includes psychological principles. Our students are habituated with readymade materials and expected questions only. This should be avoided and awareness should be created so as to make students more study oriented. This can be done with the help of teaching machine, TV, tape slide or computer by constructing programmes.

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ROLE OF DISTANCE EDUCATION IN THE PROFESSIONAL DEVELOPMENT OF TEACHERS: IGNOU EXPERIENCES

Vibha Joshi

and

Seema Veena

BACKGROUND

We are on the verge of entering into a new millennium. As we are moving nearer and nearer to it, the role of education has been acknowledged as the most crucial one for personal and social development of the individual and the society. The conventional educational system we have inherited, has not developed in accordance with the existing and emerging needs of the individuals and society. At the same time declining budgets in education is a perennial experience for every country and the conventional system lacks capacity of the formal delivery infrastructure and often, as well, to a poor quality teacher force. The development of communication technology and its use in education and training led to the emergence of an alternative system i.e. distance education. To day it is a widely accepted system. The importance of this system is self explanatory from the following texts:

> *The recommendations following Jomtien (Thailand) Conference in March 1990 on Education for All of G-9 countries, first time they had specifically underlined the potential of distance education in accomplishing this task, in the area of in-service teacher education and support as well as indirectly reaching neo-literates and marginalised groups of teachers.*

> *One of the most significant development in the field of education during the last two decades has been the acceptance, spread and growth of distance education through open learning systems in most parts of the world.*

Features of the Open University System

The important features which can be identified with the Open University system are:

1.   The University is exclusively committed to the needs of distant learners;

2.   It caters to the needs of various categories of people without regard to age, previous educational background, place of residence.

3.   It has freedom to devise academic programmes to meet the varied requirements of different age groups.

4.   It has freedom to choose methods of teaching to suit the requirements of its students.

5.   It makes full use of modern communication technology

6.   It is more flexible in organising its activities and has greater freedom to innovate.

Reasons for Popularity of Distance Education

The wide international acceptance and popularity of distance education may be primarily attributed to the following features:

1.   Its wider access, outreach and cost-effectiveness.

2.   Its potential for democratisation of educational opportunities by catering to the educational needs **of** the working people, housewives, economically backward sections of society, dropouts, handicapped persons and people living in remote and inaccessible areas.

3.   Opportunities for lifelong and continuing education for adults, system professionals and the community at large.

4.   Relaxed entry qualifications and provision for learning at one's own pace and convenience.

5.   Well planned and carefully prepared self-instructional course materials.

6.   Multimedia teaching-learning system which makes learning more

interesting and effective for the learner.

7.   Student support services which include a widespread network of regional and study centres *with facilities* for: counselling/ tutoring, evaluation of students' assignments, *playback of audio* and video cassettes, T. V. and radio, personal contact programmes,library and reading room, practical for science, technical and vocational professional courses.

8.   *Wider course offerings* and flexibility in combination of subjects

9.   Interdisciplinary studies

10. Mobility of students from one education institute open university to another *within* the country as well as across national boundaries.

DISTANCE EDUCATION AND TEACHER EDUCATION

Role of Distance Education in Teacher Education

The emergence of distance education has opened a number of channels in the area of education and training. The reason behind the success of distance education is its resourcefulness, feasibility and in-built adaptability which made us reailise its multifaceted potentialities.

It is well known that teaching is one of the *most popular* and sought for vocation at every level of education because the opportunities for employment has increased with the emphasis of universalisation of elementary education, adult and continuing education and the *campaign of Education For All*

Many developing countries have been utilising the potential of distance education to upgrade the knowledge and the skills of in-service professionals, especially teachers. In our country, a number of efforts have been made in this direction. Many projects have been using this mode to professionally upgrade the knowledge and skills of working teachers.

Role of Open *Learning in* the Training of In-service Teachers

A number of countries, both developed and developing, have been using this mode for in-service training of teachers. In seventies

and eighties, many open universities have been established in different parts of the world. It is significant that a number of these open universities are situated in the developing countries of the third world. Special mention may be made of the Sukhothai Thammathirat Open University (STOU), Thailand, which offers programes for teachers. China's Central Broadcasting and Television University caters to the in-service needs of a very large numbers of working teachers through out the country. Nigeria has trained masses of their primary school teachers at their places of work. Kenya, Zambia, Tanzania, Indonesia, Pakistan, Sri Lanka and Bangladesh are using distance teaching methods to train teachers. In our country also, NCERTs projects, in training of working primary teachers, are using this mode. Tele-SOPT in two states- Karnataka and Madhya Pradesh were found successful. On the results of these experiments, NCERT has initiated one more programme for upgrading teachers' competencies in mathematics i.e.. Tele-Mathematics for primary teachers in the state of Karnataka. Similar experiments were done for orientation of primary teacher educators. A collaborative project of IGNOU-NCERT and supported by World Bank under DPEP- II is involved in the training of working teachers.

Professional Development Through Distance Education

Distance education has opened avenues for working population. They can improve their academic as well as professional qualifications without leaving theirfamily and place of work. This is applicable for all working teachers too. If a teacher is teaching in a school without any professional training, s/he can do the required teacher training programme like diploma or degree through distance mode without leaving his/her place of work. Even if a teacher is professionally trained s/he can improve his/her qualifications by doing other higher programme of studies like Master's. M.Phil, or Ph.D. in their discipline or education through this mode.

IGNOU'S INTERVENTIONS

Presently the University is offering 47 programmes and 553 courses of studies in various subject areas. As, it is a national university with its sufficiently well supported student support network throughout the country, any teacher desirous of upgrading h s/he educational or

professional competencies is eligible to enroll and pursue her/his studies from the place of convenience. The major programmes in the teacher education are- Postgraduate Diploma in Higher Education (PGDHE) for working and prospective teachers of institutions of higher education. Certificate in Guidance (CIG) for working teachers in the pre- and primary schools, Diploma in Early Childhood Care and Education (DECE) for working preschool functionaries, Certificate in the Teaching of English as a Second Language (CTE) for teachers working in primary and secondary schools, Diploma in Primary Education (DPE) - Modular form for working teachers in the North-Eastern Region, Bachelor of Education (B.Ed.) for working teachers of recognised schools, Ph.D. in Education.

Professional Development Through Extension

DEP-DPEP-II: This project is concerned with the training of primary school teachers, members of village education committees and educational administrators of the education departments in various States through the distance mode. The project was sponsored by the Ministry of Human Resource Development (MHRD) and supported with World Bank funding. The Project is implemented by an independent unit set up by the University which functions in partnership with the National Council for Educational Research and Training and the MHRD at the national level and State Council for Educational Research and Training (SCERT). State Departments of Education and the District Institutes for Education and Training at the State level. The project has so far developed 103 capsules of distance education training material and has organised 67 training programmes covering 600 teachers and other functionaries. In addition, 65 audio scripts and 38 video scripts were developed. The main function of the project is capacity-building and development of material for in-service teacher training.

CONCLUSION

This paper attempts to highlight the teacher education programmes developed by IGNOU, a national and internationally recognised institution in the field of distance education. These programmes were developed in collaboration with national and international institutions. For example, Certificate in Guidance (CiG) was developed in collaboration with a

National Institution offering programme in the area of Guidance and Counselling from more than three decades. Similarly, Certificate in Teaching of English as a Second Language (CTE) is developed in association with Central Institute for English and Foreign Languages (CIEFL) and other agencies. All these programmes adopt multimedia instructional system and have study centres scattered all over the country. In future there may be a possibility of credit accumulation and transfer among teacher education programmes offered by IGNOU and other distance education institutions in the country.

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APPENDICES

Post-Graduate Diploma in Higher Education (PGDHE)

Objectives

To enable the participants to acquire a perspective regarding the system of higher education, its context, its functions and its linkages with other systems: develop professional competencies that a university/college teacher ought to have; and develop awareness to undertake reforms and innovations in the teaching profession.

Structure

The programme comprises five courses and a project which constitutes a course by itself. All courses are of 6 credits each except the extended contact programme:

ES-301 Higher Education: Its Context and Linkages

ES-302 Instruction in Higher Education

ES-303 Higher Education: The Social-Psychological Field

ES-304 Planning and Management of Higher Education

ES-305 Project Work

ES-306 Extended Contact Programme (4 credits)

Note: UGC considers PGDHE as equivalent to two Refresher Courses for teachers in Education and one Orientation Course for teachers of other disciplines.

Certificate in Guidance (CIG)

Objectives

To develop awareness about child development and the process involved in guiding elementary school children.

Structure

The programme consists of four courses of 4 credits each.

ES-101 Understanding the Elementary School Child

ES-102 Facilitating Growth and Development

ES-103 Guiding Children's Learning

ES-104 Guiding Socio-Emotional Development of Children

Certificate in the Teaching of English as a Second Language (CTE)

Objectives

This programme is designed to enhance the school teacher's understanding of the learners, the learning progress, and the structure of the English Language. It will also help the teacher to innovate strategies for the skills of listening, speaking, reading and writing.

Structure

This programme comprises five courses of four credits each:

Compulsory:

CTE-1 The Language Teacher

CTE-2 The Structure of English

CTE-3 Teaching Strategies

Optional:

CTE-4 Teaching English (Elementary School)

CTE-5 Teaching English (Secondary School)

Diploma **in** Early Childhood Care **and Education (DECE)**

Objectives

To help learners to develop the knowledge, attitudes and skills necessary for working with young children (0-6 years of age) and equip them with skills to organise and manage child care centres like creches, pre-schools and day-care centres.

Structure

The programme consists of 32 credits of 4 courses. :

DECE-1 Organising Child care Services

DECE-2 Child Health and Nutrition

DECE-3 Services and Programmes for Children

DECE-4 Project Work: Working with Young Children in a Chiidcare Setting

TEACHING ENGLISH TO OUR CHILDREN

S. Muthukumaran

INTRODUCTION

Our children are required to study English compuisorily from the third standard onwards. They study English for 10 out of 12 years of schooling. We also study English for two years in the colleges. This is approximately equal to 2200 hours of *class* study. It is also known that most of the school children spend 50% or more of their study time at home studying English. Yet the knowledge of English of a substantial percentage of these children is known to be not satisfactory. Many an academic advises that we increase the duration and intensity of teaching of English in order to improve the knowledge of English of *our   children.*

We learn from experts on teaching of English language to foreigners that an adult requires 250 to 500 hours of intensive teaching in order to achieve a comfortable level of fluency in a foreign language *{Carroll* 1969). In other word,s 8 to 17 weeks of teaching English is sufficient to make one fluent in the language. As against this, our students are being imparted 4 to 8 times this amount of teaching and yet many of them do not acquire the requisite proficiency. Therefore, we have to find an answer to the question: What is wrong with our teaching of the English Language ? In order'to find an *answer,* we have to review the process of teaching of languages in our schools, vis-a-vis the available research findings in teaching of languages and also understand the present *social environment of our country.*

SOCIO-ECONOMIC **REALITIES**

In our society, we know those in the upper levels of socio-economic ladder prefer in general to speak in English rather than in their mother tongue or mix a large number of English words with mother tongue in their conversation. In other words, people consider it prestigious to use English *words* even in routine day to day conversations such as *telling* the time, the day of the week or common

food items like rice, miik ,water, etc. A boy/girl who does not throw a few words of English in his/her conversation is often considered to be uneducated! Therefore, even those who do not belong to this class and who might not have studied beyond the elementary school mix in their ordinary conversation a large number of English words. Often when we ask in Tamil for directions to our destination, the man on the street replies as follows:" *Straights poi leftla cut panni pona antha kalyanamandapam varum".* The use of the words such as "straight", left' and 'cut' is not only not necessary but also inappropriate. On the whole, use of English or mixing of English words in the day-today conversation is considered to be a sign of education.

The world over, it is generally accepted that a common man who is not educated uses a colloquial language; one who is educated uses the literary language. Literary language is pure language. In other words, a common man may speak a colloquial language which may include words from other languages. An educated person may speak in the pure grammatical form of the language. For example in the English speaking countries, standard English is preferred. Divesta (1974) observes: "The preference for standard English is not based on a desire to improve communication but on the fact that people who use standard English tend to have higher socio-economic status than those who do not." Whereas in our country, education appears to make one use a hybrid language- a language in which words of another language are freely mixed. This has happened in our country due to the socio-economic environment.

We also know that everyone has a capacity to learn and retain a certain number of words. To put it differently, their vocabulary of each individual may be large or small but it is limited. Most of the ordinary men and women have the capacity to retain only a small vocabulary. Therefore, if they learn two equivalent words they prefer to drop one of them so that there is no strain in their system. People tend to drop that word which belongs to the language which has less prestige in the society. Thus, in our country we find children endowed with a larger vocabulary retain the word from the mother tongue which they learnt at home and also the corresponding English word they learnt at the school. On the other hand, a child with a capacity to hold a smaller vocabulary would drop the word from the mother tongue as

it carries less prestige. In our country, it is unfortunate that by extending the teaching of English to all sections of the society, there is a rapid erosion in the number of mother tongue words in the common use. We already find that the most intimate Tamil words like Amma, Appa for mother and father respectively are disappearing from common use: common words like numbers and names of days are disappearing. We appear to be transforming our language into a creolized language.

Age **of Learning the Second Language (English)**

In our country, it has now become common to introduce the foreign language as a second language even in the kindergarten. Those who advocate this *practice* base their arguments on the following observations: (1) In the immigrant families, children *learn* the language of their new community with native proficiency whereas the adults take longer time and show traces of foreignness (2) There is a critical period in the life in which language learning can occur easily. This age is before adolescence. For adults, the language learning is difficult and laborious.

Recent researches have clearly established that these premises are not founded on any scientific truth. There are conclusive evidences according to William Littlewood to establish that older learners have not lost their capacities for natural language learning. (Littlewood 1984). The differences in learning ability that we notice between children and adults are due to the fact that children have better learning conditions.

William Littlewood (1984) quotes several investigations and observes that in Holland, English-speaking adolescents acquired Dutch more quickly than younger children. In America, Ann Fathman found that learners of English aged between eleven and fifteen acquired grammar (but not pronunciation) more quickly than children aged between six and ten. Efficiency in second language learning increases with age, and that younger learners are superior only in acquiring pronunciation skills".

Another group of researchers lead by Krashen (1987) concluded from published data as follows:

> Adults proceed through the early *stages* of second language development faster than children do (where time and exposure are held constant).

Older children acquire faster than younger children, time and exposure held constant.

*   Acquires who begin natural exposure to second languages during childhood generally achieve higher second language proficiency than those beginning as adults.

Krashen (1987) also observes that "children are superior to adults only in the long run." McLaughlin (1987) states: "research on syntactic and syntactic variables consistently supports the argument that older learners are better both in terms of rate and ultimate attainment". Younger children do better in the area of phonological development, although even here the evidence is not unequivocal. Early adolescence is the best age for language learning, both in terms of learning and ultimate attainment. He quotes the case of Canadian English speaking 12 and 13 year olds who did just as well in learning French as other children with the same background who were in French classes from kindergarten and who had undergone twice as many hours of French classes. According to him, the 12 and 13 year old English children learnt French twice as fast as another set of English children of the same background who started learning French even in their kindergarten classes.

Oliva (1969) observes that a pupil who begins foreign language in the kindergarten will be more able in the language at, the beginning of seventh grade than a pupilwho delays beginning the foreign language until fourth grade. According to him, the FLES (Foreign Language in Elementary School) teacher should concentrate on general educational values of the language and recreational aspects of the language. Emphasis should be given on aspects such as songs, dances, games and simple expressions taught exclusively in oral form. There should be encouragement to children to listen, imitate and repeat oral material. The teacher should use a generous amount of visual material in class room teaching.

Consequences **of** Teaching Two Languages in Kindergarten

The evidence the world over against the introduction of two languages at the early age is overwhelming. Smith (Garrison etal, !964) studied a group of bilingual children ranging in age from

approximately three years to six and half years and concluded that it would appear unwise to start any but superior well adjusted children in learning languages during early childhood or preschool years.

In USA, education experience with immigrant children who speak a foreign language at home and English at school, reveals that this bilingualism is a handicap to the child's academic achievements (Leonard Carmichael, **1968),**

We also observe in our own country the children of well to do well educated parents learn both English and mother tongue well by going to English medium kindergarten schools; whereas the children of the poor parents who are not well educated even if sent to the same school at an unbearable cost to the parents, perform not so well. These children usually speak a broken variety of English and their Tamil is also no better. Antasi and Cordora (Garrison etal, 1964) in their investigation of 176 Puerto Rican children enrolled in grades six to eight found that bilingual children tend to be handicapped in their performance on intelligence tests. Divesta (1974) observes that the way the two languages are learnt may change the thinking behaviour. He reported about an experiment in the Philippines, described briefly by John and Horner that, the performance of the experimental group of children taught initially in the mother tongue for the first two grades while learning English and then switched to instruction in English was better than the control group taught in the traditional way-in English throughout.

CONCLUSION

If our children are not mastering the English language even though we are teaching it for ten years in the school and for years in the university, it is not English teaching that is to be strengthened. It is the teaching it for ten years in the school and for two years in the university, it is not English teaching that is to be strengthened. It is the teaching of the mother tongue that is to be strengthened. I can draw one parallel in Civil Engineering. If a dam is leaking there is no point in plugging the hole where the water is oozing out. It is upstream of the dam that requires a waterproof coating and plugging of cracks. I would like to cite another case. During the second world war, the

British Air Force was strengthening the air crafts where they found holes in the planes that returned after each engagement. Then one intelligent man pointed out that it is those places where there are no holes that require strengthening. His argument was as follows:" We are examining the planes that are returning to the base. If holes are formed in other places the planes are not able to fly and they are unable to return to the base". Hence, those other places are to be strengthened . The same thing is true here. If only we teach our children their mother tongue first and after they attain sufficient mastery of the language, they are exposed to other languages like English, they will be able to learn better the second or foreign language as well as their mother tongue.

From the foregoing it is clear that if we wish to make sure that our children learn English in order to be able to'practise a vocation in any country with English as the or one of the official languages, or join a multinational venture we have to do the following:

1   We should not load the child with too much of language. We could limit the teaching of English to functional English and drop the literature part of English. This would reduce the burden of remembering a large English vocabulary useful only for those interested in learning the culture of the English speaking people.

2   Teaching of English language in the Elementary School is to be dropped or if it is to be retained it should be confined to oral practice: there should be no reading or writing of English in the elementary school.

3   English reading and writing may be introduced only at the high school i.e., when the child is 12 or 13 years old.

4   Strengthen the teaching of the mother tongue and expose the child to the foreign language only after it has mastered the mother tongue.

A trader in information will sell the information to one who wants the information. An educationist will provide the knowledge that is useful to the individual, educate him in a manner which is most suited to him and prepare him to become intelligent and wise. Let the educationists not just sit and watch the trading that is going on in the kindergarten and the English medium elementary schools; but express

in unequivocal terms the best way of educating our children including imparting of proficiency in English.

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RELATIONSHIP BETWEEN JOB SATISFICATION AND TEACHING COMPETENCE OF THE SECONDARY SCHOOL TEACHERS OF CACHAR DISTRICT OF ASSAM-ASTUDY.

Sumana Paul

Cachar, an old and historically important district of Assam with adjoining areas was known as "Haidimbadesh", in olden days. The district of Cachar is situated between Longitude 92°15′E and 93°15'E and Latitude 24°8' and 25°8'N and is bounded on the North by North Cachar Hills District and the State of Megalaya, on the East by Manipur State, on the south by the State of Mizoram and on the west by the district of Karimganj and HailakandL

It is a welt known fact that in the fast changing world of today the role of the teacher assumes special significance, since s/he is instrumental more than anybody else in helping the younger generation to imbibe the right values, skills and attitude necessary to cope with the world of tomorrow, it is believed that only a competent teacher can bring about the modernisation and mobility in the changing and dynamic society. Again it is well justified to assume that satisfied and devoted teachers would make a better job of their vocation and hence promote the national cause more effectively It is very clear that there is a close link between tese two terms i.e. Job-Satisfaction and Teaching Competence. The investigator felt the need of studying the relationship between Job Satisfaction and Teaching Competence Again, since no study on the above mentioned topic was undertaken on the Cachar district, the present investigator decided to undertake such a study.

OBJECTIVES OF THE STUDY

To find out the relationship between Job Satisfaction and Teaching Competence of selected categories of secondary school teachers,

DESIGN OF THE STUDY

The population of the present study comprised all the teachers teaching in secondary schools (i.e. Classes VIII to X) of Cachar district of Assam. Stratified random sampling method was followed by the investigator, and care was taken to make the sample representative in respect of the selected strata. 248 teachers were involved from the selected categories of teachers. For measuring Job-Satisfaction B.C.Muthay's Job-Satisfaction scale was used and for measuring Teaching competence General Teaching Competence scale (Borada) was used.

FINDINGS

An attempt was made to analyse and interpret the relationship between Job-Satisfaction and Teaching Competence in respect of the entire sample of the teachers as well as selected groups of teachers viz., male, female, urban, rural, married, unmarried, trained, untrained, lower age group (age upto 35 years), higher age group (age above 35 years), experience group I (upto 10 years), experience group II (above 10 years), Govt./Provincialised school teachers and also adhoc/venture school teachers. Coefficient of correlation of the scores of all the abvoe mentioned groups of teachers were calculated in respect of Teaching Competence (TC) and Job-Satisfaction (JS) to show the relationship.

TABLE-I

Relationship of Scores on Teaching Competence and Job-Satisfaction.

Variable	Coefficient of Correlation 'r'	+Value	P
JS VS TC	-0.1553	2.466	.05 level

From the above Table-1, it is clear that correlation value between Job-Satisfaction and Teaching Competence was -0.1553 which is significant at .05 level of confidence.

This indicates a strong correlation between Job-Satisfaction and Teaching. Competence, i.e. greater the Job-Satisfaction higher will be the level of Competence. The correlation value between Job-

Satisfaction and Teaching Competence is negative , since a lower value in the scale gives higher Job-Satisfaction.

Coefficient of Correlation (r) of scores of Job-Satisfaction and Teaching Competence were calculated for various categories of teachers respectively.

TABLE-2

Relationghip Between J.S. and T.C. for Various Categories of Teachers.

Groups	r	+value	P
Male	-0.1426	1.72	N-S
Female	-0.1636	1.66	N-S
Urban	-0.1231	1.35	N-S
Rural	-0.0973	1.08	N-S
Married	-0.1592	2.12	.05 level
Unmarried	-0.2362	2.04	.05 level
Trained	-0.0223	0.19	N-S
Untrained	-0.0818	1.05	N-S
Lower age	-0.1551	1.63	N-S
Higher age	-0.2025	2.40	.05 level
Lower experience	-0.2450	2.61	.01 level
Higher experience	-0.1308	1.54	N-S
Govt/Provincialised	-0.1117	1.51	N-S
AdhocA/enture	-0.1175	0.93	N-S

From Table-2, it is clear that the relationship between Teaching Competence and Job-Satisfaction was found not significant for male, female, urban, rural, trained, untrained, lower age group, higher experience group, Govt./Provincialised school teachers and also adhoc/venture school teachers.

CONCLUSION

In case of the aforesaid groups of teachers the variables appeared to be independent of each other. The relationship between teaching competence and Job-Satisfaction was found significant for the following four groups of teachers: married, unmarried, higher age group and lower experience group.

CONSTRUCTION OF LOGICO -MATHEMATICAL KNOWLEDGE - A CHALLENGE FOR PRIMARY SCHOOLTEACHER

H.K.Senapaty

Education being imparted in today's school instead of aiming at knowledge construction, which is its fundamental purpose has been degenerated into the process of knowledge transmission. This conception although ancient in expression sets a new generalization in all systems of training and forms the core of Piagetian theory. It is high time to know something about how the fundamental knowledge is constructed and how thinking functions in young child to fulfill the exigencies of the educational set up as it exists today, which requires an adaptation of teaching to the cognitive levels of the children.This adaptation will be possible if the teaching originates from what is already constructed in the child and the teacher offers learning experiences that permit the child to utilize and exercise his particular level of thinking. In our current educational scenario, teachers are preoccupied with the teaching of encyclopaedic facts and skills. They are asked to teach and check whether or not the child has acquired skills or competencies. In addition to this,now-a-days, educators realise that children do not learn simply by being told or things explained to them verbally. They recognize the necessity of exposing the children to concrete experiences. These types of concrete experiences which refer to any direct contact with real objects and events, help in the development of physical knowledge, but not the logico-mathematical knowledge which can only be built by the child's own invention.By putting a block in water,for example, the child can discover their properties. On the other hand, in logico-mathematical knowledge, the child can not discover from the objects themselves whether there are more red flowers or more flowers in a collection. All logico-mathematical structures have to be invented or created by the child's own cognitive activities. In this context, the role of the teacher is not of transmitting knowledge by guiding his experiences and to develop a framework so that specific skills and information can be anchored in the total structure.

In view of the above facts, an attempt has been made to analyze the process of knowledge construction that provides a framework for innovative practices in classroom transaction and the practical strategies for implementation in the context of present scenario.

Psychologists believe that knowledge is not absorbed from outside,but rather is constructed from the inside by the child in continuous interaction with the environment. This process of construction is quite different form what our adult common sense leads us to believe. Piaget was of the view that knowledge is built by a continuous process of construction of structures that are rooted in biological adaptation. The sequence of development is same for ail children regardless of the culture in which they live.This sequence can not be changed or a step can not be skipped in the long process of construction.The difference that has been observed is found oniy in the rate of development. It has been observed that children in a more developed culture develop faster than the children those live in a less developed culture. Within the same culture, children living in city and in the more advantaged groups develop faster than those living in the country and in a less advantaged group.

Types of Knowledge

Piaget delineates two interlocking areas of knowledge that have different modes of structuring: i) *Physical knowledge,* and *i\)Logico-mathernatical knowledge.* A third area has been added by Sinclairwhich she calls *Social knowledge.*

Process of Knowledge Cons:raction

Physical knowledge is structured from the object's reaction to the child's action on object. Whether or not a stick sinks in water is an example of physical knowledge. Arranging the sticks in order is an example of logico mathematical knowledge which is constructed from the child's own action.In contrast, the social knowledge is structured from people's reactions. Sticks are called 'sticks' not 'blocks' is an example of social knowledge. This knowledge construction depends upon four bio-social factors.Piaget has listed this in his 'Summing up of our work in child psychology'.The first is the organic growth,especially the maturation of nervous systems which he calls necessary and indispensable but it is only one factor among several.The second is

the role of exercise and acquired experiences in the action performed upon objects including both direct physical experience and indirect logico-mathematical experience.The third factor is social interaction and transmission which like maturation is necessary and essential and is insufficient by itself.The fourth and final factor is the coordination of desperate three factors into a simple and regular sequences of stages i.e., equilibration.This equilibration may not be possible in the prevailing close system of education.No cookbook curriculum can possibly give the teacher answer in a ready- made form.There is need of an open system of education, where the role of curriculum designer, implementer, and evaluator will be combined in one i.e. within the teacher.

Piaget's conceptualization gives guideline to the teacher as to how to make moment to moment decisions in the classroom for knowledge construction.The concrete experiences in the classroom put emphasis on discovery.Piaget has made a distinction between 'discovery[5] and 'invention'. His favourite example is that Columbus did not invent America. America existed before Columbus discovered it. On the other hand aeroplane was invented because it did not exist before it was invented. Corresponding to the distinction between the discovery and invention is the distinction between the physical knowledge and logico-mathematical knowledge.The physical knowledge can be built by discovery but the logico-mathematical knowledge can not be built by this method. It can be only built by child's own invention.In logico-mathematical knowledge, when we contradict the child we only make him unsure of himself, because without the necessary cognitive structure the child has no way of understanding why his way is not right. In physical knowledge, the child does not feel unsure if the objects contradict him.

Knowledge is not simply built from the concrete to the abstract in the sense of representation. Each child has to construct his cognitive structure by abstraction from objects and his own coordinated activities.This will enable the child to have the cognitive framework within which he will be able to understand the meaning of the terms in a spatial, temporal, social, classificatory, seriational and numerical sense. From the point of view of knowledge construction, there are many kinds of concrete experiences and abstractions.The teacher

who understands these differences can decide what to teach and how and what not to teach and why, and can adapt his teaching to the cognitive level of the children. Piagetians are of the view that intelligence is an organised, coherent whole structure and not a collection of skills. Piaget's biological model views the development of intelligence is similar to that of an embryo.The arms, lungs,eyes and head of an embryo develops out of a structured whole from the very beginning. The individual parts develop through a process of differentiation, co-ordination and construction. A characteristic of the biological constructivist view of learning is that what has been learnt once is never forgotten.Once the child,for example,has built the cognitive structure, that structure is not forgotten and remain as an integral part,throughout his life. Of course,sktlls such as reading,writing and counting are to be learnt, but these skills may be treated as tools in the service of intelligent living, not as the cause of intelligence or goals in themselves. In reading, for example, there are skills to be learnt, but these skills are to be distinguished from comprehension which comes from the cognitive structure of the child.Counting too is a skill, but this skill must not be confused with the concept of number which comes from the cognitive structure. It is also stated that no meaningful concept can exist in isolation, it seems appropriate to find ways to develop the framework so that specific skills and information can be anchored in the total sructure.lf the child has a more elaborate cognitive network, he can apply it to every diverse area such as physics, chemistry, geography and mathematics.When the child has a more elaborate cognitive structure he can arrive at the correct answer to a variety of questions. This approach to education seems more appropriate than the alternative of trying to teach every specific skill, rule and information with the hope that some element will be remembered and transformed to other situations.

PIAGET'S THEORY OF COGNITIVE DEVELOPMENT

Piaget proposes that cognitive development consists of four global stages- the sensory motor stage(roughly birth to 2 years), the pre-operational stage(rough!y 2 to 7 years), the concrete operational stage (roughly 7 to 11 years), and the formal operational stage (roughly 11 years and beyond). Each stage has an underlying competency system which Piaget calls cognitive structures.The cognitive structures of a

stage comprise mental entities called operations.These operations change through the process of assimilation and accommodation. Assimilation is the integration of external elements or inputs into the existing cognitive structure. Modification of a structure to fit the input or new experience is called accommodation.In this process the mind assimilates information from the environment and change occurs within the existing mental structure in order to accommodate the new information.Efficient cognitive development depends upon appropriate match of the experience or input with the existing cognitive structure.This match permits the equilibration to take place.The optimal match between the input and the existing cognitive structure leads to a form of mental balance called equilibrium state.The systematic changes which occur as a result of equilibrium give rise to the above mentioned stages of cognitive development.

PEDAGOGICAL PRACTICES BEING FOLLOWED AT PRIMARY STAGE

The investigator has observed three schools, two in Orissa and one in M.P. to study the pedagogical practices followed by the teachers at primary stage.

School No. 1

There are four teachers including the Headmaster, for five classes. One teacher manages classes-! & II: the combined class, and the other three manage the classes-III, IV &V separately. All the teachers are trained. The student strength of the school is 265, out of which 117 are in classes-l & II. 53 in class-III, 50 in class-IV, and 45 in class-V. Very often the class monitor is entrusted with the responsibility of controlling the class and maintaining the discipline. Children are punished on the complaint of the class monitor. They are afraid of their teacher. They are asked to sit silently on. their assigned seat during the school hour. They are allowed to go out during the game period and recess. Corporal punishment is the vital means of maintaining discipline.The teaching work begins after the roll calls. The teachers usually teach using chalk and talk. Teaching aids are rarely used. No distinction is found in the methods of teaching of mother tongue and environmental studies. Children are asked to memorize the facts without understanding. The teachers, however

make use of blackboard to teach mathematics and other subjects.

School No-2

The school is well staffed. There are 10 teachers for 8 classes. Out of 10, 6 are trained, and rest 4 are untrained . Six teachers are master degree holders.The student strength of the school is 179, out of which 29 in class-I, 23 in class-II, 18 class-III, 11 in class-IV, 23 in class-V, 39 in class-VI, 25 in class-VII, and 11 in class-VIII. Teacher pupil ratio is very good.   So far as classroom transaction is concerned, no difference was observed in the teaching of trained and untrained teachers. No difference was found in the teaching of environmental studies and language. Children are asked to memorize the content without understanding. All the teachers have been exposed to latest pedagogy under joyful learning scheme, but they donot want to practise what they have learnt. Teachers either sit or stand in the classroom and use to teach from the text book. Science subjects are taught very passively without conducting any experiment. No teaching aids other than the blackboard and chalk are used in the classroom transaction .

School No.3

There are 13 teachers, out of which 8 are regular teachers and 5 are temporary teachers. The total student strength of the school is 365, out of which 64 are in class-**I**, 72 are in class-**II**, 79 in class-III, 74 in class-IV, 76 in class-V. Each class is having two section. There are 13 teachers for 10 classes. The school is well equipped with teaching aids. Minimum levels of learning has been introduced in the school. Unit tests are being held regularly. Students are asked to perform some activities in their home. Teaching aids are being used during teaching, but activities are being conducted without taking into account the cognitive levels of the students.

PEDAGOGICAL PRINCIPLES INVOLVED IN THE PROCESS OF KNOWLEDGE CONSTRUCTION

The pedagogical principles involved in the process of knowledge construction are presented below.

•   Learning has to be an active process, because knowledge is

constructed from within. Almy et. al.(1966),and Ginsburg and Opper(1969) have emphasized this point. Duckworth(1964), selected the highlights of the statement of piaget, "Good pedagogy must involve presenting the child with situations in * which he himself experiments, in the broadest sense of trying things out to see what happens, manipulating symbols..." .This theory expresses the uniqueness of Piaget's theory of education.

•   There should be social interaction among the children.Piaget believes that without this social interaction child remains prisoner of his own naturally egocentric point of view.

•   Emphasis should be laid on intellectual activity based on actual experiences   rather   than   languages.Almy   et.   al. (1966), Duckworth(1964), and Furth(1970) have pointed out that language is important but not at the expense of thinking.

        The above principles are reflected in 'when', 'what' and 'how" of instruction.

When to Teach

 Piaget's view of learning is called 'Readiness Doctrine'. Piagetians are of the view that children should not be taught concepts until they are developmentally ready to learn them.This leads to four specific proposals.

•   Children should not be taught concepts that exceed their current .   stages of development.

•   Concept must be thoroughly mastered before proceeding to the next one.

•   Concepts should be taught exactly in the same order as they acquire them naturally.(e.g.conservation of number ......length.......quantity).

•   Concepts should be taught after extensive diagnosis.Teacher should know a great deal about child's state of conceptual knowledge.

What toTeach

    Concepts deemed to be essential to pre-operational and concrete operational stages should be included in the curriculum.These

concepts fall into general area of logic (e.g. transitivity, inference and classification), mathematics (e.g. number), science (e.g. conservation), and space (e.g. topological geometry, Euclidean and projective geometry). With respect to medium, Piagetians favour the use of instructional materials that consist of concrete objects which can easily be manipulated by the children. Thus, Piagetian curriculum is not confined to operative knowledge only, rather it believes in the rapprochement of operative, figurative and connotative knowledge.

How to Teach

Most Piagetian educators believe that there are three teaching strategies:

- *Active self discovery method* which is guided by the assumption that 'the subject himself is the main spring of his development. In that it is his own activity on the environment or his own active reactions that make progress'.

  Tutorial method where the objective is to produce cognitive conflict (e.g. disequilibrium) by making the children aware that their current beliefs are not the same as those of the other children.

  Peer teaching method where child's peers play a major role in his or her cognitive development. For intellectual development the co-operation among children is as important as the child's co-operation with the adults.

  Keeping in view the pedagogical principles, Joyce and Weil (1985) have developed the *Cognitive Growth Model of Teaching*. This is an innovative practice of teaching in increasing the capacity to think. It has been designed to increase the general intellectual development, especially logical reasoning but can also be applied to social and moral development. Further, it can be used for diagnosis and evaluation. This model consists of three phases i.e. (i)Confrontation with stage relevant tasks,(ii)Inquiry, and

(iii)Transfer. It can be understood better from the following table:

Phase I   Confrontation with stage relevant task

Present   puzzling   situation   well-matched   to   learner's developmental stage.

Phase 11   Inquiry

Elicit student's responses and ask for justification .

Offer counter suggestion and probe student's responses

Phase III   Transfer

Present related task , probe student's reasoning and offer counter suggestion.

In phase one, the students are presented with puzzling situation well matched to their developmental stages.In phase two, student's responses are elicited and probed by the teacher through neutral questions. Generally, probing consists of asking for justification and offering counter suggestion. Phase three is the transfer phase, where the objective is to see if the student will reason similarly cn the related task.The teacher probes students reasoning and offers counter suggestions. Study conducted by Senapaty and Passi (1991) reveals that cognitive development can be fostered with the help of this model. If a student is not in a position to respond at any stage , the teacher may take the child back to the beginning point or any other suitable point in between. If the child still fails to respond he may be provided

with a task of lower difficulty level . At the time of presentation of task, the social system, principle of reaction and the support system of the cognitive growth model may be taken into consideration.

Social System

Here an environment of activities and materials that induce student guided inquiry is provided . In most cases , teacher initiates and guides the inquiry in a free intellectual and social atmosphere.

Principle of Reaction

Here teacher creates a facilitating atmosphere so that the child feels free to respond naturally, The teacher constantly tests student's thinking with counter suggestion till he or she is satisfied with the level of reasoning.

Support System

The teacher is supposed to be well grounded in developmental theory of Piaget and is to be equipped with relevant counter suggestion. It requires a rich and stimulating environment.

MODEL IN ACTION

Number Concept

This task can be used both in group and in individual situation. If it is to be used in group , each child of the group is to be given a set of materials. The task is in dialogue form and the group comprises of 10 class~ll children.

Material: 35 blocks, 30 for the main experiment and 5 for the counter suggestion.

Each child of the group is provided with one set of the materials and asked to perform some activities. If a child fails to perform, the experimenter may reduce the number of blocks till the child is able to perform the activities. The experimenter also takes one set of materials and asks the following questions:

Experimenter: How many blocks are there in this set?

Child: There are 30 blocks.

E: How many blocks are there in your set?

C: There are 30 blocks.

E: How do you know?

C: By counting.

E: Can you make three rows like A, B and C ?

(The experimenter specifies the number that A, B and C will contain 7, 10 and 13 blocks respectively.)

C: Yes. (Children make three rows as per the specification of the experimenter)

(In this stage, experimenter observes each child , if some one fails, the experimenter may reduce the number of the blocks.)

E How many blocks does each row contain ?

C: A contains 7 blocks, B contains 10 and C contains 13 blocks.

E: How do you know?

C: By counting.

E: Can you make the three rows equal ?

C: Yes. (Children make three rows equal)

(The number may be reduced if someone fails)

k E: How do you make these rows equal?

C: By counting the blocks.

E: Okay, if I remove three blocks from A row, can you make all the rows equal ? (Counter Suggestion)

C: Yes.

E:How?

C: Three rows contain 30 blocks, if three blocks are removed then each row will   contain 9 blocks. (If a child fails, the experimenter may demonstrate by reducing three blocks)

E: Okay, if I remove 4 blocks, can you make all the rows equal? (Counter Suggestion)

C: No.

E: Why?

C: If four blocks are removed , then 26 blocks will be there and one row will contain 8 blocks and the rest two will contain 9 blocks each. Hence, the three rows will not be equal.

   (This type of counter suggestion question may be asked by saying, "If I remove   5,6,7,8,9......blocks from the three rows, whether the rows will be equal or not")

E : Okay, if I give you three blocks, can you make the three rows equal? (Counter suggestion)

C: Yes.

E: How?

C: Three equal rows are there, if three more will be given, one will be added to each row. So the three rows will be equal.

   (This type of counter suggestion questions may be asked by saying " if I give you 4,5,6,7,8,9,10........blocks, whether all the three rows will contain equal number of blocks or not.")

        The counter suggestion questions are to be asked to almost all children. If a child fails to give proper answer to counter suggestion question, the experimenter may conduct experiment in front of the child. If he fails to give proper justification to his answer then the experimenter may go back and conduct the experiment again. The experimenter may ask counter suggestion questions till he is satisfied with the answer of the children. The related task may be performed with the help of different materials like beads, flowers etc. To use Piaget's theory in the classroom many researches have been conducted both in India and abroad.The original attempt to use Piaget's theory in the classroom has been made by Lavatelli (1970), Furth and Wachs (1974), Bingham-Newman, Saunders and Hooper (1977), Ershler, Mcallister, and Saunders (1977), Lawton and Hooper (1977), Lawton, Hooper, Saunders (1978), Kamii and DeVries(1977), Forman (1981), Joyce and Weil (1985). in India, Bevli (1982), Padmini (1983), Senapaty (1985), Passi, Goel, Swamp and Senapaty (1986), Passi and Lakshmi (1989), Passi, Goel and Senapaty (1990), and Senapaty (1991) have examined the application of Piaget's theory in the classroom.

IMPLICATIONS

In the light of the above discussion it is inferred that the teacher can not adapt his teaching to the cognitive level by *simple transmitting* the ready-made knowledge to the children. Here the role *of the teacher* is different from the prevailing set up.The role of the teacher is to help the *child* to construct his own knowledge by guiding his experiences. In physical knowledge, for example, *If the child believes that block Will float* in water, the teacher may encourage the child to prove the correctness of his statement. If the *child predicts that* a piece of stone placed in one side of a balance *will* make that side go *down* and the other side go up, the teacher should not say' you are *right' rather the* teacher *should* say let us *find* out' .The teacher role is to discover the truth by conducting the experiment and is not of transmitting the cookbook/ready-made knowledge to the students.Similarly, in logico-mathematical knowledge, the role of the *teacher* is not to impose and reinforce the correct answer but to process the child's own process of reasoning. For example, rather than *trying to teach the conservation of liquid* by empirical *generalization, the teacher should try to Increase the mobility of thought* in all realms - in seriation, transitivity, classification and *also* in physical knowledge etc. Only incidentally the teacher should ask questions such as, do you think that there will be still more water in the jar than the glass.The role of the teacher *Is the extremely difficult* one, because constantly the teacher has to diagnose each child's emotional stage, cognitive level and interest.The teacher has to be *highly resourceful professional*

In order to *prepare a highly professional* and resourceful *teacher,* there is necessity of re-engineering the teacher education programme. It should equip the teacher with the necessary *skills, competencies and Ideas so that* the *teacher can provide opportunity or* can *create environment to construct* his own knowledge and moral standard through his own reasoning. Emphasis is to be laid on the child's own thinking and judgment rather than on the use of correct language and adult logic.To operationalise these *Ideas, teaching* is to be adjusted to the developmental characteristics *of the children representing Plagetlan stages* and sub-stages in the classroom. For this purpose, *firstly, the obstacles thatthe presentway of teaching presents are to be removed. Secondly, the curriculum* is to be developed and enriched keeping in

view the developmental characteristic of Piagetian stages.It also refers to the quality of classroom transaction which depends upon the understanding of the theory of development.This understanding helps the teacher to know the technique of the use of different materials in the classroom. We are sure that the principle of teaching deduced from the child's intellectual development can significantly and qualitatively alter the behaviour of the teacher and the nature of the experiences he or she arranges for the children. Piaget's work is almost in a world apart from the kind of the school that looks for a mindless mastery of the techniques of reading, writing and arithmetic. Piaget's theory is inappropriate in a highly centralized school setting. It needs a different kind of school, different kind of teacher and different kind of children.It should free teachers to be imaginative and innovative in helping children use the curiosity that they exhibit from youngest days.Teacher should be free to use his intelligence to plan a variety of experiences for children- perhaps each different from the other from year to year and from class to class. Keeping in view the above fact the following issues may be taken into account from the point of view of adapting teaching to the cognitive level of the children.

- Can an active process of education be tolerated in which children are not necessarily sitting in an assigned seat during much of the day but are interacting with the materials in the classroom and working with the learning from one another?

- Can group activities be tolerated so that there is encouragement of projects , jointly conceived and executed and for which the rewards and reinforcements are made to the group rather than to any individual or in other words whether co-operation can be tolerated, in contrast to competitiveness, because social interaction gives a clearer understanding of the world?

- Can the incorrect language forms be tolerated and accepted especially when the children, with the teachers encouragement, are making discoveries or are learning new ideas, because correct language or correct answer to a question may not always may not reflect a child's real understanding?

• Can we accept the wrong answers that are wrong in absolute sense but are appropriate and normal for a child at a given age? The four year old, for example, reasons that large objects are inherently heavier than the small objects, and is unlikely to benefit from the teachers pointing out his faulty thinking and providing with him a correct explanation. Rather the experiences that permit and encourage the child to compare sizes and weights will be of greater value to him. Then he may begin to draw for himself conclusions that are in accord with his observations and that enhance rather than diminish his sense of self worth.

• Can we break down the barriers between the traditional discipline areas and interrelate disciplines through the use of work situations that require the synthesis of knowledge from a variety of disciplines, and develop an understanding of the structures that underlie all forms of knowledge?

• Can we combine the role of program developer, implementer, and evaluator within the role of the teacher, and equip and empower the teacher for cognitive development?

• Since learning is not confined to schools, and as we are going to put emphasis on learning to know', learning to do', learning to be', learning to live together', can various activities of the society be turned into sources of learning? Can various pieces be integrated into a new system that would be an educational system and not only a school system?

• Can we change the teacher education curriculum keeping in view the challenges of classroom transaction and curriculum in the context of cognitive development?

CONCLUSIONS

Piagetian conceptions of knowledge construction provides a framework for innovations in curriculum transaction. The role of the teacher is not to provide ready-made knowledge and morality, rather to provide opportunities for the child to construct his own knowledge and moral standard through his own reasoning. It focuses on child's own thinking and judgment, rather than on the use of correct language and adult logic.It encourages the desirability of intrinsic motivation, initiative,curiosity, and the teaching of thinking. Keeping in view the

above *facts,* the teachers are to be trained with the necessary knowledge, skills and competencies to create opportunities for the child to construct his knowledge through his own reasoning,

Such goals are not ease to achieve. It requires the re-organization of the teacher education programme as well as the school system.Teacher needs to be convinced that his discipline contains an infinite number of possibilities for theoretical deepening and technical improvement. His understanding of the problem of intellectual development, their relevance for his work and practical implications and the recognition that he himself can make his work a meaningful one, play a vital role for curriculum transaction.

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DEVELOPMENT ACTIVITIES, LITERACY & POVERTY

D.C. MISHRA

INTRODUCTION

The main objective of National Literacy Mission for the country like India was to include people within the age group of 15 to 35 for better quality of life. Special care was taken to bring disadvantaged groups like women, Scheduled Castes and Scheduled Tribes, backward classes into the network of the programme. The basic objective was to create a general awareness among the masses for achieving the goal of education for all. The people in general would be able to participate in a number of developmental activities with greater interest and explore the possibilities of having an access to higher income through different vocations in addition to the basic competencies to be achieved in reading, writing and numeracy. The access to information would enable the people to improve their economic status. The achievement of self-reliance through functional literacy may result in empowerment. Thus, the quality of life can be improved. After the introduction of the scheme in States and Union Territories in India, the voluntary agencies, the Universities, the State Resource Centres, the Shramik Vidyapeeths and government administrations have become more closer in organising innovative and experimental programmes and in mobilising the non-literates in general. During the period of the campaign under the basic literacy, post literacy and continuing education in India between 1991 to 1996, much has been said about the positive and negative aspects of the scheme. The success stories and reports have also been published. The evaluation studies have been conducted. The numerical achievement figures have been circulated but it is very difficult to say about the achievement of the neo-literates in terms of their needs and aspirations with special reference to women empowerment.

OBJECTIVES

The present study has attempted to find out the role of literacy campaign among the men and women in rural and urban areas and

the nature of participation in developmental activities and to analyse the socio-economic status of the neo-literates in terms of economic conditions in tribal and non-tribal sectors.

REFERENCE

In Orissa. the literacy rate is about 49% as per 1991 census. The number of non-literates in the age group of 15 to 35 who were brought under the scheme was about 40 lakhs. About 60% of them were women and 40% were men. The Scheduled Tribe population was about 35% and the Scheduled Caste population was 20% in terms of neo-literates.

In case of this study, information from four districts such as DhenkanaL Angul, Sundregarh and Keonjhar, were taken for reference.

REFERENCE POPULATION
(Number in Lakhs)

District Sector	Enrolled				Neo-literates			
	Men	Women	SC	ST	Men	Women	SC	ST
\on-Tribal)	0.71	120	0.39	0.40	0.67	1.00	0.33	026
Z '"•;•-£. (Non-Tribal)	0.96	1.35	0.68	0.60	0.39	**0.64**	022	021
• zv -i: Tribal)	1.31	1.78	0.41	1.80	0.50	0.72	020	0.52
Sundergarh (Tribal)	1.30	1.94	0.34	1.91	0.63	0.71	0.11	0.82
TOTAL	**4.28**	**6.27**	**1.82**	**4.71**	**2.19**	**3.07**	**0.86**	**1.81**

The general figures have been outlined in the above table which indicate that about 10 lakhs of non-literate were covered for the referencbe out of which 60% are women and 40% are men and about z: % tribal and 20% are Scheduled Castes. - The achievement figures - z:: cate that out of 10 lakhs of non-literate only 5 lakhs could be made berate out of which 60% are women and 40% are men and about 43% are tribal and about 20% are Scheduled Castes. The selected sample population from the above districts taken for study may be seen from the following table.

By random sampling technique the following sample has been selected for the study.

District	Total	General		Tribal	
		Men	Women	Men	Women
Angul	100	30	40	15	15
Dhenkanal	100	30	40	15	15
Keonjhar	150	40	50	30	30
Sundargarh	150	40	50	30	30
TOTAL	500	140	180	90	90

SAMPLE RESPONDED

Selected Districts	Prop-osed	Genral Caste			Tribal			GT M-W
		Men	Women	Total	Men	Women	Tctai	
Angul	100	22	31	53	10	8	18	32-39/71
Dhenkanal	100	25	30	55	12	8	2D	37-38/75
Keonjhar	150	32	41	73	22	20	42	54-61/115
Sundergarh	150	36	35	71	20	21	41	56-56/112
TOTAL	500	115	137	252	64	57	121	179-194/373

METHOD

A total of 373 neo-literate were covered for the purpose   After collecting opinions and information regarding the economic status of the people and the rate of participation people, the final analysis has been made on the following parameters.

> Level of literacy
> Poverty indicator - income levels
> Participation status in developmental activities
> (Number of neo-literate and frequency of
> participation)

Time spent for the campaign was about 4 years for all the learners including basic literacy and post literacy period. A list of developmental activities organising for these learners was collected and their participation status was noted. The present income status of all men and women was collected and this economic status was compared to the status, they enjoyed during 1991 i.e. before participation in the developmental activities which was almost found to be nil during the initial stage. The analysis made in these parameters are reflected in the Table given below:

PARTICIPATION OF

NUMBER OF NEO-LITERATES IN DEVELOPMENTAL ACTIVITIES

A-Activities

		Atleast in one Activity	More than one Activity
Rural	Men	30%	25%
	Women	35%	25%
Urban	Men	40%	30%
	Women	40%	30%
Tribal	Men	20%	15%
	Women	26%	28%
S.C.	Men	20%	10%
	Women	10%	10%

B-Levels of Litreacy Increased

	Tribal		Non-tribal	
	Men	Women	Men	Women
	10%	7%	12%	9%

C-Level of Income perMonth Increased

		1991 Level (Rs.)	1996 Level (Rs.)	% increase
General	Men	500	625	25%
	Women	400	450	12%
Tribal	Men	460	480	4%
	Women	380	450	16%

ANALYSIS

Level of income of the women learners has not substantially increased where as the male learners have improved their economic status. In case of tribal men, the income status remaining altogether same, the women learners have improved their income. The rate of participation of the learners in developmental activities has increased in general. The learners have not derived any benefits through the participation. They have been able to establish themselves as successful agents of communication. The rate of participation of the tribal women is more than that of men. The empowerment in case of women appeared to be in a more vigorous form than that of the men but in case of tribal women, the empowerment has not gained any momentum. In general, the interest of the learners has helped them to motivate for sending their children to schools. They have become aware of their health and environment status. Though it was not cossible to interact with the individual learner, in other aspects of the campaign, the following conclusions can be drawn on the basis c~ re acove analysis.

FINDINGS & CONCLUSIONS

The campaign modality was not suitable to their needs and desires.

The functional literacy mechanism has become an instrument to place their demands.

In general, quality of life has not been improves

The awareness in health and hygienic aspects was prominent.

There was a protest against social evil from am or g e : ~ e n.

The community involvement was not significant.

Rate of participation among the tribal learners has to be increased by designing suitable schemes with reference to the developmental activities to be implemented in their areas.

More information technology is required to be imparted for improving their economic status.

The agencies implemented income generating schemes are not educating the non-literate in general.

CONTENTS

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RESEARCH IN MATHEMATICS EDUCATION

J. N* Kaput

NEED FOR RESEARCH IN MATHEMATICS EDUCATION

One of the most important and meaningful areas of research today is that of mathematics education. The reasons are the following :-

(i)   Almost every child all over the world in the age group 5 to 16 is directly influenced by the state of mathematics education.

(ii)   The future of all physical, biological, social and management sciences and of technology is very much dependent on the state of mathematics education today.

(ii i) All available evidence shows that research in this area can provide large dividends in the form of considerable improvements in mathematics, science and technology and thus can contribute to the welfare of mankind,

(iv)   We are spending about 10 thousand crores of rupees ever/ year on teaching mathematics to students. On account of our out-of-date methods of teaching, about 50% of this money goes waste. By spending 10% of this money on research in mathematics education, we can avoid all this great waste.

In U.S.A., the National Science Foundation spends at least 10 times the money on mathematics education research than what it spends on mathematics research itself, because it realises that research in mathematics education is much more vital than research in mathematics itself. There are more than 350 colleges and universities offer masters degree in mathematics education and there are about 50 universities which offer Ph.D degree in mathematics education. There are 25 universities which have separate departments of mathematics education and in many other universities, mathematics education is an important discipline in the departments of mathematics.

RESEARCH IN MATHEMATICS EDUCATION IN INDIA

I wrote trend report of mathematics education research for the 5th educational research and innovation survey for the period 1988 to 1991 conducted by the NCERT. This report was based on an analysis of 29 Ph.D. theses, 9 M. Phil, dissertations, five research reports and four research articles which appeared in this period. This was some improvement from the initial stage, since in the first 25 years after independence, only ten Ph.D. theses were produced in mathematics education. However even now the output is-still very small when we consider the large number of research problems requiring immediate attention, the diversity of conditions in the country and the fact that USA alone produces about 300 or 400 theses per year. We do not yet have independent departments of mathematics education, nor do we have many professors of mathematics education in India, though we have some professors of education who take interest in mathematics education and some professors of mathematics who are interested in research in mathematics education. However only 20% of the departments of education and 2% of the departments of mathematics have shown interest in research in mathematics education.

In my survey report, I classified the 29 theses under the following heads: (a) Research in high failure rates in mathematics, (b) Research for improvement of learning and teaching of mathematics, (c) Special problems of learning and teaching of geometry (d) Research in evaluation of curricula.

It appears that most of the research is based on individual efforts and there is little evidence of coordination. Individual M.Phil, or Ph.D. student and his or her supervisor choose a problem and draw a suitable plan of action. Investigation is carried out and the student gets his or her degree. There is little follow up of research. In mathematics education, both research and development should go together and it is time that the utilization of research should be considered as important as doing research.

We have differences on account of sex, religion, caste, educational background of parents, different types of institutions, socioeconomic status, rural, urban, semi-urban locations, different ways of presenting a subject, different method of evaluation, different disciplines of mathematics and many more types of differences. If we

consider all these, we have thousand of problems to investigate and very few researchers to do the research.

Most of the research is done on teaching of present curricula and no research effort is devoted to investigating alternative possible curricula taking into account the developments in mathematics, the developments in applications in mathematics and the emergence of new technologies based on the use of calculators, computers, information technology, the use of films and video cassettes and modern teaching aids.

SOME TOPICS IN MATHEMATICS EDUCATION IN WHICH IMMEDIATE RESEARCH IS NEEDED

The NCERT has taken up a major exercise for development of a new curricula for the new millennium. This will also require preparation of new curricula in mathematics. However there is no research to back this development and there are some areas on which immediate research is needed, otherwise the new curriculum may mean change of topics from one class to another

A curriculum includes not only the syllabus, but also the teaching and examination strategies through which it is to be implemented and these strageies can be developed by large scale experimentation over a period of time. Some of the topics in which research is needed are the following:

Teaching of algebra/trigonometry/vectors/caicuius/matrices/ probability/statistics/numerical-methods etc. in schools.

Teaching of application of school mathematics to school students.

Use of mathematics applications projects to create interest in applications of mathematics.

Integration of mathematics and science teaching at all levels.

Development of special strategies for teaching first generation learners, children from backward classes and physically and mentally handicapped children,

Development of special strategies for teaching mathematics to children of tribal and hill areas.

Use of calculators to improve teaching of school mathematics.

Integrating the use of calculators with the rest of school mathematics*

Use of computers for teaching mathematics.

Use of mathematics laboratory for teaching mathematics.

Use of audio-video cassettes and films in improving of teaching of mathematics.

Curricula for in-service training of teachers.

Evaluation of present-in service programmes from the point of view of their effectiveness and adequacy.

Alternative methods, including distance education, for training of mathematics teachers.

The impact of olympiads on the attitude of students towards mathematics.

Integration of teaching of mathematics with the teaching of other school subjects.

Role of mathematics clubs and recreational mathematics in teaching of mathematics.

Use of graphic calculators in schools.

Teaching problem solving strategies.

Teaching students to pose problems in mathematics.

Use of guided-discovery or freedom to learn or pattern-recognition approach as against the present lecture method of teaching mathematics.

Enrichment of school mathematics through problems from industry.

Identifying and nurturing talented students.

Evaluation of present mathematics textbooks.

Evaluation of present mathematics curricula.

Effects of eliminating tricky problems and of reducing number of problems in unimportant topics.

Time saved by using calculators in schools.

Should the focus of school mathematics be shifted from computations to solution of problems?

Will reduction of drill problems by 25% lead to significant decline in learning of mathematics?

What topics in school mathematics are not useful in daily life and which of these are not needed for studying higher mathematics?

SOME POSSIBLE PH.D. THESES TITLES

Some possible titles for Ph.D. theses are:

Historical development of mathematics curricula.

Programmed learning in mathematics.

Mathematical models for learning of mathematics.

Computer-assisted education: theory and experiment

Development of a computer-based integrated curriculum

Industrial problems based on school mathematics.

New games for learning mathematics.

Feasibility of a curriculum based on its history.

Mathematization

Operations research applied to mathematics education.

Development of mathematics education in other countries.

Experimental work on psychology of mathematics learning.

Problems of mathematics teaching in special areas.

Role of computers in undergraduate mathematics.

Mathematics training for the gifted and for the slow learners.

SOME QUESTIONS FOR RESEARCH IN MATHEMATICS EDUCATION SUGGESTED BY AN AMERICAN CONFERENCE.

To what extent does experience with concrete materials improve,

learning in mathematics?

Does teaching of mathematical structures help to illuminate concepts?

What is the optimum time to learn a specific topic or skill?

What do teachers do in their classes at the present time that individualizes instruction?

Are the problems of learning mathematics for centre-city children different from the problems of learning mathematics of children from the suburbs?

What process do children use in solving mathematics probiems before they are taught mathematical structures and processes?

How early in a child's experience can a specific concept be taught?

What sequences of topics are best?

What effect does the differences in cultural and educational background, have on the learning of mathematics? Stated in another way: if a given learning model is being tested, it should be tested in a variety of classroom conditions with students from various educational and cultural backgrounds.

What classroom conditions are desirable for the development of a given mathematical concept?

How much can be learnt from materials already available?

Would students learn mathematics in a free activity school an: how well would they will learn. A longitudinal study need to be done for students in a free activity school. Studies in such ar activity school could be directed towards : (a) stages of learning (b) what materials and what types of materials are useful fc learning? (c) determining the age when a child can learn, and (c learning related to cultural background differences in such schoo

Do young students have an understanding of the concept conservation of number and how important is conservation mathematics learning?

What variable predict performance in mathematics? What perc: of the variance in total performance is accounted for by each

the variables?

What memory load is required in different processes? Would mnemonic devices be of use where memory load is heavy?

What strategies do students use in problem solving?

What content in mathematics is most useful in meeting broad objectives of mathematics learning?

What sequences of topics are best for reaching specific objectives?

How do students develop attitudes towards learning mathematics?

What factors influence the difficulty for students in genera!?

Are there some difficulty variables which are common to all students?

Do the factors which influence difficulty of problems vary with different groups?

What non-mathematical variables influence difficulty of problem solving in mathematics?

Learning takes place under various conditions, but what are the ranges of these conditions?

On teaching of mathematics, the questions under discussion are too broad to be considered as researchable hypotheses, but they certainly lead to many questions open to experimentation. Some of these question are listed below:

(a)   Should curriculum materials include behavioural objectives which are stated explicitly prior to the development and production of the materials?

(b)   What are the differences involved in attempting to describe explicit behavioural objective in mathematics education?

(c)   Can behavioural objectives be stated explicitly?

(d)   To what extent are teaching strategies related to or independent of learning objectives?

(e)   Can we determine optimal sequences for mathematics learning?

(f)   If we assume that we are now at a stage in the study of teaching where we should be amassing and classifying large amounts of data, which kinds of data are most significant?

(g)   is it more profitable at our current stage of development -in research to conduct experiments which involve many variables at once, or to manipulate only a few variables at once?

(h)   How do we train teachers to perform as artists in the classrooms? Is it possible for the teacher training institutions to be more scientific in the training of teachers? Can we produce artist teachers scientifically?

(i)   What are the characteristics of bad teaching? Can we tell teachers what not to do in teaching?

Some projects suggested were:

(a)   How does a student learn the concept of a limit?

(b)   How can we use agencies of change for improving mathematics education?

(c)   How to proceed about diagnosing learning disabilities and finding remedies for them?

(d)   What will be the influence of delaying writing of mathematics *b)* child unless he has got a lot of intuitive and verbal experience with mathematics?

(e)   What will be the influence of showing teachers films on goc teaching?

(f)   What makes a good teacher?

In the section of needed research in mathematics curriculum, r following questions were asked

(a)   What are the goals of mathematics instruction at different leve

(b)   Do existing curricula have, definite the goals?

(c)   Can we estimate students future needs of mathematics a evaluate present curricula on this basis?

(d)   How can we find the limits of a learners, capacity to master spe: mathematical concepts at various maturity levels?

(e) Can we specify the behavioural objectives and the learning hierarchies?

(f) How far are instructional styles relevant to curriculum development?

(g) Should teaching strategies be part of the curriculum-development?

(h) What is the role of special concepts in curriculum development?

(i) How can we integrate algebraic and geometric concepts in the curriculum?

(j) What are the influences of attitudes, motivation and environment on achievements in mathematics?

CONCLUDING REMARKS

It is suggested that every teacher of mathematics, every mathematics educator and every research scholar in mathematics education should try to give his or her answer to each of these questions, based on his or her own experience and then try to design experiments to check the answers to at least some questions, it is also suggested that groups of teachers may have brainstorming sessions to discuss answers to these questions. Every teacher has a laboratory for research In mathematics education *In* his or her classroom and should try to use it to find answers to these questions. A great deal of research on these questions has been done in UK, USA, USSR and to some extent in India. We may give a survey of these researches in part 2 of the present article. The NCERT and State Governments should provide funds for research on these topics. The Central Government may constitute an autonomous National Board for School Mathematics, in the same way in which it has formed a National Board for Higher Mathematics to encourage research *In* mathematics education. The universities may start departments of mathematics and science education to encourage valuable researches in these fields. Mathematics departments may recognise research in mathematics education as an important as research in any other area of mathematics.

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KNOWLEDGE-CONSTRUCTION   AND *MEDIA-PEDAGOGY*

B. K. Pass!

CONCERNS

1.   Does knowledge-construction involve the *processes* of subjectivity and *components of affective domain? Let's re-worti this question: Is knowledge objective or subjective"?*

Z   Do media *play* a *neutral* role and employ objective principles for instructional operations?

3.   How does media-specific-pedagogy p!ay its role in instructiona processes?

4.   How do media play its role in information delivery (I have avoidec taiov^edge delivery)?

Such questions *bother me whenever*! confront *Issues* of curricula framework for distance *education, including distance teacher educatior* I *think* one *shoukl ask* these four questions *from* the point of view of th s learner? I *am surefhatthe nature of questionsmll change* as a result : the answers, This change *will automatically demand* a *comple' alteration* of the mind-sets of open-education providers.   How c I₃ as a learner, create personal meanings in my process of knowleti: *construction? The* knowledge will *thus become a personal affair ?* He do I, as a learner, *create an access to* the *media and* use the princip - *of media* in my choice of tools? Will media principles *play neutral* rc for my *learning a^Mties* (not instructional operations)? How do mec specific-pedagogy play its role in learning-processes (not instructic processes)?   How do media play its role in knowledge-crea" *{knowledge-consimctlon) and information delivery* (I have a vol: knowledge delivery)?

KNOWLEDGE CONSTRUCTION

Epistemologrca! implications:

Let us understand the epistemological implications of some of the selected issues. Let us understand the common sense meaning of epistertfofogy We find that epistemoSogy is a branch of philosophy ^hak studies knowledge. Epistemofogy attempts to answer basic questions about the *nature* of knowledge, and also the process of knowledge-construction. A history of the development of epistemofogy shows that the meanings of epistemofogy have changed with times. The philosophers of yore believed that knowledge was absolute, universal and objective. Over the years, 'empiricism' and 'rationalism' have become popular processes for constructing knowledge. Later, the pragmatic approach to knowledge emerged in the shape of logical positivism'. And, soon, we started hearing about models of subjective problem-solving.

Constructivism:

A radical viewpoint emerged in the form of constructivism. This approach assumes that all knowledge is built by the learner In fact, it asserts that all 'knowledge' is the outcome of individual personal processes. Knowledge gets constructed in the mind of the learner: Knowledge-construction may not be linear. Objective transmission of knowledge from one mind to another does not take place in a simplistic manner. There is nothing like 'given knowledge* neither objective empirical facts, nor inborn cognitive structures which can be used for packing the knowledge. Individuals create coherence on the bases of their personal experiences. 'Social constructivism' goes beyond this view. This group believes that social consensus plays its role in knowledge-construction. This leads to the vital question: What are implications of such views for distance education?

Ground-theory of Knowledge:

Knowledge grows in quantum and evolves over time, tf the ground-theory of knowledge is the basic process within the framework of constructivism then we would find multiple, independent, and sometimes contradictory substances of knowledge. We may encounter multiple

criteria of knowledge. We might discover multiple approaches to epistemology. We may synthesis© the traditional and less traditional views of knowledge to work out a pattern of distance pedagogy where all conventional and modern thinking about epistemology merge.

Knowledge Media:

in 1995, Eisenstadt introduced the idea of 'Knowledge Media[5]. He argues that teaching also, and especially teaching through the media, often starts from an impoverished view of what knowledge is: 'Now, is knowledge the answer to what fits onto CD-ROMs, what "sits" on a file server, or what "travels" down the information highway?' Most emphatically not! Knowledge is an emergent property which transcends the fixed-size-and-space concepts of media and information, just as it transcends the notion that you can impart it to students by "filling" them up from the teacher's "vessel". Knowledge is a dynamic process, a vibrant, living thing, resting on shared assumptions, beliefs, complex perceptions, sophisticated, yet sometimes crazy logic, and with the ability to go beyond the information given. "Knowledge" is the correct abstraction for describing what people communicate to one another "Content" is not."

MEDIA CHARACTERISTICS

Special characteristics of media. Each media has its unique structure and unique characteristics. This uniqueness of media generates particularized functions, A particular media has a particularized pedagogy Let us take the example of introducing textbooks for the instructional process. A textbook represents organized knowledge through accepted symbols. This intervention has influenced the status of the teacher who previously used to be the provider of all. Prior to the textbook, a teacher was the only source c knowledge. The textbook has reduced the overarching monopoly c oral pedagogy. The skills of reading and writing thus received new an: added attention along with speaking and listening skills. The ordina- textbooks however, excluded blind learners from the educations scenario. In fact, we should know that later, brailled and audio textboo;- were introduced to overcome the limitations of ordinary textbooks. Th exclusive learning objectives of memorization have to nc

accommodate the additional objectives of critical analysis and reflections, We may appreciate the fact that one could conduct analysis and reflections in pre-textbook pedagogy. The important point for us to focus on is that the over emphasis on memory was cut to size. Many more pedagogical principles can be listed similarly.

Since tools by themselves cannot operate, the specific media pedagogy would have to be selected. As an illustration, let us take one example of the new pedagogy of using computers in school learning. It is a medium where we know that the computers have taken over the controls of learning from the teachers and have handed over the controls to the learners. The providers of information have thus taken a back seat, with the*learners are in the driving seat. The learners are monitoring the learning interactions. The learners are in command. The controls on the substance of learning, space of learning, pace of learning, and also the context of learning are in the hands of the learners even though they are isolated and distributed all around. *Hew* relationships between teachers, learners, and computers are emerging. It appears as though while staying back in their homes or workplace or some other place, the computers are helping the learners to learn even when the traditional teacher is not present.

To illustrate this point further, the other day the senior Vice-President of NI IT was explaining the possibilities of self-learning through computers. He was describing an experiment of learning behaviour of children living in a slum area of Delhi. He quoted an experiment conducted by NUT New Delhi. It was found that the slum children learnt internet-browsing by unsupervised self-efforts. He further researched into this learning feat and discovered that the children played a few pro-active-tricks. Apart from trial and error, these learners had identified a local boy of that very slum Nathuial (as a surrogate teacher), who was working as a peon in an office where computers were installed. This peon-boy became "the grand-teacher" of the enthusiastic slum-learners, who were learning browsing on a computer installed by NUT The researchers asserted, as a result of this experience, young children can learn new things through their own efforts; and further they have the capacity to teach, what they have learnt, to their elders including teachers'. This experiment has turned the tables upside-down and the

young learners have become the "teachers of teachers". This has *truly created a* new *environment*

In this new environment of *self-learning,* the *hierarchical* relationship between the *teacher and* the taught has melted into *"relationships of* equality[51]. In fact, the children and the teachers have acquired a new sense of *camaraderie,* The *computers* have introduced a humanizing effect in a situation that was predominantly impersonal and *bureaucratic.* Is this not an interesting *phenomenon? How do* we use these findings for a new pedagogy of cooperative learning? Accordingly ho¥/ do we design new support systems for creating *friendly environments? Let us* extend it further to the four *pillars of learning* - learning to learn; *learning* to be; learning to do; and learning to live together.

We have to understand that each tool has its own pedagogy and tool-specific procedures developed to use it. We should be looking for a *Interface* between -tool-specific-pedagogy and subject-structures. We are aware of the fact that each subject has its own discipline structure. A given subject *organizes* its knowledge structure in its own manner. Each subject *develops* its concepts, principles, and generalizations in a ver> unique fashion, For example, methods of observations used in geography are useless in mathematics. The methods of historical analysis may nc be useful in the disciplines of languages. Thus, subject-pedagog\ depends upon the *nature of the* subject The *nature* of the *subject* furthe" depends upon the substance of the subject and the special methodoloc of constructing the knowledge of that subject. We should be clear tha we are talking about specific-methods of researching in *spec\i* disciplines. We are talking about the specific substance of each of th - *disciplines.* We ought to, therefore, understand the specific pedagoc of the *respective* media. We shall therefore have to explore the spec characteristics of the tools of the media for delivery systems. In order design instructional systems one should have a deeper understands of the above mentioned four components - subject substance, subje: research method, specific *media characteristics,* and media spec' pedagogy

PEDAGOGY OF KNOWLEDGE MEDIA

Media has been using gestures, images, symbols, voices, and other medium for expression and communication. Knowledge media has travelled a long journey, a journey where milestones like oral expression, written language, print formations, radio/TV broadcasting, and global hyper medium have played their roles in many ways and in may spheres of life. Information media have influenced areas of recreation and education. It has also influenced areas of culture.

Media Shapes Knowledge and Culture
{Adapted from the work of Simon, Buckingam and Shurn)

Media	Knowledge	Culture
Oral	"You know only what you can recall"; knowledge is dramatized; repetitive; concrete; situated; participatory; personal; historically fragile.	Intellectually conservative; prominence of ritual and storytelling; wisdom associated with people,
Written	Not restricted to human memory limitations; abstract; decontextualized; and reproducible.	Primacy of mind over emotions; contemplative tradition,
Print	Infinitely reproducible; objective and precise; indexible; referenceable.	Scientific rationalism; development of highly linguistic/literacy styles.
Radio/ TV	Instantaneously accessible; soundbite.sized; image based; passively absorbed; increasingly packed and filtered.	Expects knowledge and opinions on tap; beginning to lose meaning in the data,
Hyper- media Global	Transient (digital); changeable perspectivized; interlinked; open- ended; dynamic; public not private; breadth at expense of depth.	Information-rich (knowledge -rich, wisdom-rich); loss of linear modes of reasoning; loss of linear model of history.

We have seen in the table that with the change of media, the nature of knowledge, knowledge-construction, patterns of delivery of knowledge, and its impact upon culture got transformed from stage to stage. The knowledge transformed itself from 'concrete; situated; participatory; personal; historically fragile" to "transient (digital); changeable; perspectivized; interlinked; open-ended; dynamic; public not private; breadth at the expense of depth". The simple face-to-face oral delivery mechanisms got transformed to global hypermedia delivery without any delay. With the latter mechanism, the same message without any loss of quality and delay is present simultaneously everywhere. What a paradigm where equivalence is available overtime, space and quality.

The oral medium culture was having a fervour of intellectual conservatism; prominence of ritual and storytelling; and wisdom was associated with people. This got transformed to information-rich, to knowledge-rich, and to wisdom rich cultures. We lost the dominance of linear modes of reasoning. We began to prefer joint inter plays of left-right brains through integrated systems of thinking. We also lost linear models of history. Instead, started looking for holistic patterns of behaviours.

An example will illustrate the evolving path of media and concomitant roles. Let us imagine the period when textbooks were introduced in schools. A lot of people were expressing apprehensions and fears all around. The popular image of teachers holding encyclopaedic knowledge was substituted by the power of books. In fact, the roles of teachers were modified from mere teaching tc teaching-cum-writing textbooks. The emphasis from verbal interactior between the teacher and the students got.shifted to reading-writing of textbooks. The pedagogical focus shifted from memorizing facts tc reasoning and a higher order of thinking. Emphasis shifted frorr listening-speaking skills to reading-writing skills. Instant long-terr memory lost its currency. Rote learning was replaced by analytica synthetic understanding. There were many more implications of this innovation called the printed word (books).

PRINCIPLES **OF MEDIA**

Apart from the genera! characteristics, many of us believe that media have certain special characteristics. We have to cautiously discern their features and characteristics and study their impact upon special groups. One cannot follow an omnibus approach of using any media anywhere. An inappropriate use of media can have a backlash effect. Media can act in a biased fashion. Media can even distort the objectives. We know people saying that media is the message. We may invest scarce financial resources and create more problems for the society at large. Adverse outcomes can happen inadvertently. Sometimes, we may not be able to control the outcomes. Hence, media tools have to be used with careful thought, extreme sensitivity, and adequate planning. These tools of technology should extend their access to education for the general population, and be used in particular for the training of the knowledge-deficient groups, The un-reached, the isolated and those who have been ignored for too long must be attended to on a priority basis, We should therefore, choose pro-poor- (not in terms of money but in terms of knowledge deficiency) technologies. One must thoroughly understand the media before using it. We may, perhaps, give equal emphasis to iow cost indigenous systems of knowledge technology One should have a knowledge about the inherent and implicit characteristics of media.

Principles of Technology

In this context, Neil Postman has asserted that technologies have their biases and strengths. The author has listed eleven principles in favour of this point These principles are listed here, (i) "All technological change is a Faustian bargain, For every advantage, a new technology offers, there is always a corresponding disadvantage. The advantages and disadvantages of new technologies are never distributed evenly among the population. This means every new technology benefits some and harms others, (ii) Embedded in every technology there is a powerful idea, sometimes two or three, powerful ideas, (iii) Like language itself, a technology predisposes us to favour and value certain perspectives and accomplishments and to subordinate others, (iv) Every technology has a philosophy which is given expression in now the technology makes people use their minds; in what it makes us do with our bodies;

in how it codifies the world; in which of our senses it amplifies; in which of our emotional and intellectual tendencies it disregards, (v) A new technology usually makes war against an old technology. It competes with it for time, attention, money, prestige, and a "world view'*, (vi) Technological-change is not additive, rather it is ecoiogical. A new technology does not merely add something; it changes everything, (vii) Because of the symbolic forms in which information is encoded, different technologies have different intellectual and emotional biases, (viii) Because of the accessibility and speed of their information, different technologies have different political biases, (ix) Because of their physical form, different technologies have different sensory biases, (x) Because of the conditions in which we attend them, different technologies have different social biases, (xi) Because of their technical and economic structure, different technologies have different content biases."

We have undertaken a close scrutiny of a!! these eleven principles. All these principles have their pedagogical implications. The principles can be divided into three categories. The first, four principles can be called philosophical principles. Representing the fifth and sixth principles, the second set of principles can be called "technology-interplay principles", The third set of principles are related to "specific bias producing" principles. The five categories of biases are intellectua and emotional biases, political biases, social biases, sensory biases and content biases. We have to be alert and conscious of the ever present implicit undercurrents.

CONCLUSION

Knowledge paradigms based on the principles of post-positivisr should become the base for curriculum designs. Technologies are here there and everywhere - reaching far and wide. These technologies ca reduce the unit cost of communication. These technologies are becomir the driving force of "knowledge-based" societies all over the globe. Or- should know the media-details in terms of its features and pedagogic principle while designing instructional systems. In the area of sta development, technology can provide quality training at a faster spee: at a cheaper rate, at chosen places, at convenient times for larc: masses, with untiring repetitions and continuities. One can now rea: the otherwise un-reached groups. All these years, technology was us: to learn better. Now it is time that we should learn to use the ne technology better for our own individual benefits.

CAL STRATEGY FOR "NUMERICAL METHODS COURSE" - AN EXPERIMENT

S. Rasfogi

A. S* Pawar

INTRODUCTION

Making the learner to learn, is very much associated with the efforts of a teacher to change the process as per the suitability of the learner. Creating an interaction and active involvement, with the learner, is responsibility of the concerned teacher. "If the teacher can create an enduring fascination for the subject matter, the job is almost over: the more the students love the subject, the less help they need in their studies "(Jack Koumi). The strategy to be used should be affective or motivational rather than cognitive Jn western countries; there has been a considerable growth of interest in the use of 'electronic documents[3] which have become an important mechanism for transmitting information skills and knowledge from one location to another (Barker et al, 1995 b; Marshall, 1983). The advent of low-cost computer technologies, have made it possible to have an accessible communication system and easy-to-use authoring tools within university environments, it has promoted considerable interest in the use of digital electronic media for the purposes of 'publication*. In India, the computers are now a days knocking the doors of almost every field and its wider use has proved tremendous potential of computer technology for helping the mankind. In India, many experiments have been conducted to see the effectiveness of computer technology in learning. These experiments had enlightened the investigators to develop CAL strategy for learning the concept of Numerical Methods among degree students,

PURPOSE OF THE **STUDY**

Many researchers have found that irrespective of the subject taught, the objective of CAL remain the same. The computer has been found to be useful as means of 1. Augmenting teaching /training methods, 2. Accelerating the learning process, 3. Experimenting in course development, 4. Providing remedial instruction, 5, Providing individual instruction, 6. Providing enrichment material, 7. Achieving consistently higher teaching standards, 8.Providing cost effective instruction, 9.Providing 'on demand' instruction. This has motivated the investigators to see the effectiveness of CAL in learning 'Numerical Methods'. The widespread use of digital computers during recent years in scientific research has made the study of the Numerical Methods as important in the study of mathematics .A number of Universities have introduced the course 'Numerical Methods' in the undergraduate science curricula. Learning tedious and difficult contents of Numerical Methods is a time consuming and boring process. This creates an apathy in the minds of learners and they try to ignore this content The students require a process or technology which may save their time and sustain a continuous interest among them. The investigators though: to take the advantage of CAL strategy and develop some software for learning Numerical Methods in an easier way. This study was designee for identification of learners, problem in learning Numerical Methods. The investigators assessed the effectiveness of this strategy for the target group having third year B.Sc. students from four different group as Electronics, Computer, Physics and Math. They also took a stoc- of retention level and compared the effectiveness of strategy amor: various categories. The opinion of the target group towards the CA. strategy was also taken for understanding their experiences for raisir the quality of this strategy

POPULATION AND SAMPLE FOR THE STUDY

It was decided that students studying Numerical Methods Physics, Electronics., Computers and Maths subjects at Undergrade level in colleges affiliated with North Maharashtra University, Jalgs. may be taken as population for this study. There are about twe colleges at present where the course 'Numerical Methods' is taugh

undergraduate level. Such students of S.SA/.P.S's Science College, Dhule, Maharashtra were taken as sample for this study for the sake of convenience. It was assumed that the characteristics of learner-groups studying at various colleges were almost same or similar and so any college would represent the whole population. The sample selected had 44 students of third year B.Sc. level. There were tOfrom Electronics, 18 from Computer, 11 from Physics and 5 from Maths groups. These 44 students were subjected to Pre4est, Post-test and Retention-test with the help of an achievement test developed by Researchers.

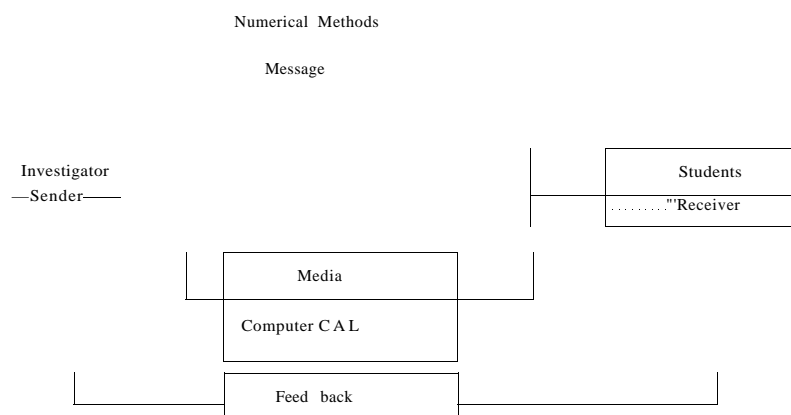## RESEARCH METHODOLOGY

Tools Development

The content covering Bisection Methods, False position Method, Newton-Raphson was analysed and a test having five open type of questions of hundred marks was constructed. For this purpose, the investigators selected about fifteen questions and the set of questions was shown to five experts in the field of Numerical Methods. The process was adopted for the development of achievement test. The students were allotted two hours of time in answering this test. It was used as Pre4est, Post4est and Retention test .The students were asked to use computer for solving these questions under the supervision of the investigator, for the development of CAL software. The subject contents were analysed and covered into various modules. These modules were explained by using very simple language, picture and examples. The script developed was discussed with software experts, After implementing their valuable suggestions, the script was made final for loading in the computer. This loaded script was displayed again to the software experts and some corrections were made by seeking their valuable advice. This software has been used for the purpose of this project. The investigators asked the students for writing an essay which was analysed for seeking the opinion of target group towards CAL strategy. This essay writing was a tool for seeking learner's opinion towards CAL strategy.

Procedure

The investigators conducted Pre-test and analysed the marks obtained by the students. The students were asked to study the content and were assisted by the investigators with the help of computer for about one

month. There was no time limit for learning, so that they could learn at their own rate. After one month, post-test was carried out and it was followed by the retention test after two months The students were asked to write an essay about their experience and opinions regarding various activities of this experiment. The data were analysed for drawing some conclusion. This methodology was followed on a single group in which following design was observed.

Numerical Methods

Message

Investigator —Sender——		Students
		........"'Receiver

Media
Computer C A L

Feed back

A CRITICAL REVIEW OF THE WORK

The statistical analysis indicated that there was significa" difference at (.01) level of achievement (t = 3.3136) between Pre-tes and Post-test stages, as well as between Pre-test and Retention-te? stages (t=2.8934) at 0.01 level for the whole group (N=44). Th difference was not significant between Post-test & Retention-te: (t=0.9250) at even 0.05 level. This established that CAL strategy v,: very effective in raising the level of knowledge and retention too for: whole target group. Similar performance was indicated by a small grc. of (N=10) having electronics students. The difference between F test and Post-test (t=6.8421) and between Pre-test and Retention-: (t=5.6363) were significant at 0.01 level while between Post-test a Retention-test (t-0.6000), it was not significant even at 0.05 level. T indicated that CAL strategy was much effective with the sub grou: electronics (N=10) being the part of whole target group. Again

computer group (N=18) the difference between Pre-test and Post-test (t=3.5882) and Pre-test and Retention test (t=2.9729), were significant at 0.01 level while between Post-test and Retention test (t-0.0477), it was not significant even at 0.05 level. Also, for physics group (N=11) the differences between Pre-test and Post-test (t=4.5001) and between Pretest and Retention test (t=4.0909) were significant at 0.01 level while between Post-test and Retention-test (t=0.1000), it was not significant at 0.05 level. Not only this, but also, for Maths group (N=5) the difference between Pre-test and Post-test (t=5.1818) and between Pre-test and Retention test (t-0.4444), it was not significant even at 0.05 level. The detailed analysis about all these groups are indicated below

TABLE -1

STATISTICAL ANALYSIS OF TARGET GROUP PERFORMANCE (N=44)

Test	Mean	S.D.	t-values	Remarks
Pre-test	25	09.2	\=3.3136	t>2.021 significant at 0.05 level.
Post-test	81	14.9	\=2.8934	t>2.704significant at 0.01 level.
Retention-test	75	18.0	*%,=0.0925	* Significant at 0.01 level.

** Not significant at 0.05 level.

TABLE-**2**   : J*

STATISTICAL ANALYSIS OF TARGET GROUP PERFORMANCE
[Electronics Group. (N=10)]

test	Mean	S.D.	t-values	Remarks
Pre-test	26	07.10	\=6.8421	t>2.306 significant at 0.05 level.
Post-test	91	07.81	*t_{13}=5.6363	t>3.355 significant at 0.01 level.
Retention-test	88	12.08	"4=0.6000	•Significant at 0.01 level

Not significant at 0.05 level.

TABLE - 3
STATISTICAL ANALYSIS OF TARGET GROUP PERFORMANCE
[Electronics Group. (N=18)]

Test	Mean	S.D.	T-Va!ues	Remarks
Pre-test	23	08	\=3.5882	t>2.021 significant at 0.05 level.
Post-test	84	15	*t_{13}=2.9729	t>2.704significant at 0.01 level.
Retention-test	83	20	*%=0.0477	* Significant at 0.01 level.

**Not significant at 0.05 level

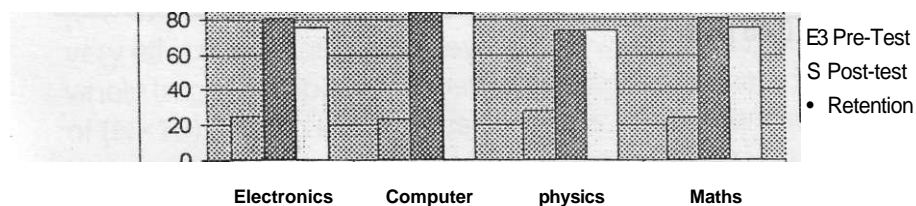TABLE-4
STATISTICAL ANALYSIS OF TARGET GROUP PERFORMANCE
[Physics Group. (N=11)]

Test	Mean	S.D.	t-values	Remarks
Pre-test	28	09.3	\=4.5001	t>2.282 significant at 0.05 ievel.
Post-test	73	12.7	*t_{13}=4.0909	t>3.250 significant at 0.01 level.
Retention-test	73	11.0	*\=0.1000	'Significant at 0.01 level.

"Not significant at 0.05 level.

TABLE-5
STATISTICAL ANALYSIS OF TARGET GROUP PERFORMANCE
[Maths Group. (N=05)]

Test	Mean	S.D.	t-vaiues	Remarks
Pre-test	24	11	\=5.1818	t>3.182 significant at 0.05 level.
Post-test	81	05	*t_{8}=3.8125	t>5.841 significant at 0.01 level.
Retention-test	75	13	"1^=0.4444	'Significant at 0.01 level.

Not significant at 0.05 level.

Learners Performance For Various Sub-Groups

These tables indicated that CAL strategy was very much effec
and helpful among the students of the target group in learning Nume~

Methods.The comparative picture is shown in figure 2, The investigators compared the level of performance among the four groups for all the three stages at Pre-test. PosWest and Retention -test.

TABLE-6
COMPARISON OF LEARNERS' PERFORMANCE AMONG SUB-GROUPS.

Group	Pre-test	Post-test	Retention-test	df
Electronics-Computer	%=1038	$,t_{i2}$ =1.6279	$,t_{i2}$= 0.3333	26
Electronics-Physics	\=0.571Q	$**t_{i3}$=41383	%~18G00	19
Electronics-Maths	$*t_{H}$=0.4Q0G	*\=3.0156	\=0.5882	13
Electronics-Physics	\=1.5625	4 =1.8000	\=17543	27
Computer-Maths	\=0.1923	\ = 0.7281	\=0.2704	21
Physics-Maths	yO.7194	^ 1 7 5 7 5	V-8118	14

*Not significant at 0.05 level   "

** Significant at 0.01 level

The above table if idicated that in case of Post-test performance the difference between Electronics and Physics groups as well as between Electronics and Maths was significant at 0.01 level ,For rest comparison as stated above, it was not significant even at 0.05 level The analysis indicated that the difference between Pre-test and Post-test as v/eli as between Pre-test and Retention-test were highly significant. The difference in the level of achievement of the target group between PosWest and Retention-test was not found significant even at 0,05 level The opinion of the learners regarding CAL obtained through essays by target group indicated that there was no controversy among them about their opinion and every body enjoyed CAL strategy with great zeai and interest.

THE IMPLICATIONS OF THE STUDY

This experimental research is an approach for assessing the effectiveness of CAL in strengthening the concept of Numerical Methods among Third Year B.Sc. students of North Maharashtra University, Jaigaon, Maharashtra. This is an effort in the series of other such works for application of computer in learning various difficult concepts. This is very economical & easily available strategy if it is used for a large group, Also, if the video projection of this software is

recorded with the help ofV.C.R, it may be a landmark effort for providing some instruction to distant learners regarding Numerical Methods content. Similar, CAL strategies for other content may be developed by various researchers and be prescribed for learning after assessing their effectiveness.

CONCLUSION

This was an experimental research in the field of subject communication. The investigators tried to develop CAL strategy for some content of Numerical Methods course to be taught among Third Year B.Sc. students of North Maharashtra University, Jalgaon, Maharashtra. The experiment was initiated with an objective of developing some new strategy and assessing its effectiveness with the help of an achievement test developed by the investigator.It was found that the CAL strategy was much effective in raising the level of knowledge among Third Year B.Sc. students regarding Numerical Methods. Also, retention level assessed after one month was very high. The opinion expressed in the form of essay by the target group indicated that the learners were happy, interested .motivated and with a friendly behaviours while dealing with the proposed CAL strategy. The CAL strategy developed by the investigators was of much use in raising the achievement levels of Numerical Methods among Third Year B.Sc students.

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A COMPARATIVE STUDY ON CREATIVITY OF GOVERNMENT AND NON-GOVERNMENT SCHOOL STUDENTS OF SECONDARY LEVEL

Maganla! S. Molia

INTRODUCTION

Generally the constructive and creative abilities are inborn in a child. But the educational system has missed such abilities in a child. The creativity in a child could be observed in their co-curricular activities. Gordon (1973) believes that creativity can be enhanced by a series of group exercise, These exercises are designed to help us understand the process of creativity more completely and to use new metaphors and analogies to "break set" and generate new alternatives.

Khire (1971) observed that the creativity has lower correlation with mechanical comprehension and higher with scholastic performance. Sharma (1971) found that the rural boys were more creative than their urban counteparts. Goyal (1974) focused his study on the personality correlates of creativity in secondary school teachers under training. Findings suggest that highly creative persons do not enter teacher training colleges and highly flexible teacher trainees appear to be more guilt prone and less imaginative. Joshi (1974) in his study of the intellectually gifted students of age group twelve to nineteen years drawn from Gujarat region found that giftedness was an effective contributor to all types of creativity scores. Gakhar (1975) investigated a sample of 730 girls of higher secondary schools of urban Panjab and observed that high and low groups of girls on verbal creativity differed significantly in respect of status, intellectual efficiency and flexibility.

In the present study, the investigator was much interested to know whether children belonging to government schools or non-government schools had more creativity. The investigator selected the given topic to study the creativity of various areas and sections of secondary schools.

OBJECTIVES OF THE STUDY

The *study* had the following objectives:

1.   To study the *creativity* of the *ninth* standard students of the secondary schools.

2.   To make comparison between the creativity of government and non-government school students of the secondary level

3.   To study the verbal, nonverbal and numerical creativity of government and non-government school students of the secondary level.

HYPOTHESES

Following four null hypotheses were framed;

1.   There will not be any significant difference between the scores on creativity test of government and non-government schoc *students.*

2.   There will not be any significant difference between the score: on verbal creativity test of government and non-government scho: students.

3.   There will not be any significant difference between the score: on nonverbal creativity test of government and non-governme" school students.

4.   There will not be any significant difference between the score on numerical creativity test of government and non governme- school students.

POPULATION AND SAMPLE

The students of secondary schools in Std. IX of Rajkot *city* we considered as population of the study. The sample of 200 ninth stance students was chosen from four selected secondary schools of *Ra* for the study. For the selection of two government and two r government secondary schools, the method of stratified ranc: sampling was used. The selection of the students from the schc : was made randomly. 100 students from the government schools e 100 students from non-government schools were selected for sample.

TOOLS OF THE STUDY

In the present study, the creativity test of Pate! J. Z. was used, which is having three sections namely verbal creativity, non-verbal creativity and numerical creativity. It is standardized for six to ten standards.

DATA COLLECTION

For the collection of data the creativity test of Patel J.Z. was used. With the permission of every school principal, the creativity test was given and then data were collected with the test.

ANALYSIS OF THE DATA

The data were analysed as per government and non-government school students and the sections of the test. The mean, SD and t-values (test) to find the significance of the mean of scores were used for the statistical analysis. The four null hypotheses were tested with the help of West. The results oft-test of creativity test scores of the students are presented in following table.

MEAN AND t-VALUE OF CREATIVITY SCORES

Test	Schools	N	M	t-Value
1. Creativity	Government	100	40.50	6.78**
	Non-Government	100	80.12	
2. Verbal Creativity	Government	100	16.18	4.08*
	Non-Government	100	20.13	
3. Non-Verbal Creativity	Government	100	08.15	0.19
	Non Government	100	08.58	
4. Numerical Creativity	Government	100	10.23	8.15*
	Non Government	100	25.78	

Significant at 0.01 ievel

Observation of the table shows that the three differences are significant at 0.01 level. These results lead to reject the null hypotheses No. 1,2 and 4. It reflects that the scores of Creativity. Verbal-Creativity and Numerical Creativity of non-government school students are found higher than the scores of Creativity. Verbal - Creativity and Numerical Creativity of the government school students. But one difference is not significant at 0.05 level. So the null hypothesis No.3 was not rejected. So it can be said that the scores are not found significantly different between the government and non-government school students on non-verbal creativity test.

CONCLUSION

1. The government and non-government school students are found different on the creativity. Non-government school students are found superior than the government school students.

2. The non-government school students are found superior on verba and numerical creativity than the government school students, bu: in non-verbal creativity the difference are not found significant in government and non-government school students.

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INTERACTIONAL EFFECT OF HOME ENVIRONMENT, SCHOOL ENVIRONMENT AND LOCALITY ON CREATIVITY

R. 3. Yadav
H. L. Pate!

Creativity is the capacity of persons to produce compositions, products or ideas of any sort which are essentially new and previously unknown to the producer It can be imaginative activity or thought synthesis, where the product is not a mere summation. It may involve the forming of new pattern and combinations of information derived from past experience, the transplanting of old relationships of new situations and may involve the generation of new correlates. To identify creative individuals and foster creative abilities are the most crucial questions in the investigation of creativity. Creativity does not just happen, it needs appropriate seed, soil and climate.

Creative development can be ensured if the dogmatic, authoritarian, restrictive and pedantic influences are removed from our schools, One of he most justifiable charges levelled against our educational system is that it has neglected and so often has suppressed the natural creativity of the young. The eagerness with which a child starts school-his curiosity, his capacity for wonder,, his imagination, his sensitivity and fascination with the world in which he lives get hampered.

Creativity, as considered, is not only artistic but can also be described as a capacity which expresses itself in all areas of life. It is a specific way of handling information of observing things, of behaving and of reacting. Creativity is not a monopoly of a few, if opportunities are provided everyone has the potential to be creative in his own way (Mathur, 1977). Thus a variety of factors rather than a unitary talent accounts for the observed achievements of creativity. It has been found that personality factors are crucial in the development of creativity. The roots of creativity do not seem to lie in convergent or divergent thinking, but rather in personality and motivational aspect of character (Hudson,

1966).

Two environments, home and school share an influential space in a *childs* life and there *exists* a unique juxtaposition between the two. By its very nature, the *family* is the social-biological *unit* that exerts the greatest influence on the development and perpetuation of the individual's behaviour. Next to family, school is the most important experience in the process of child development,

The area or locale in which an individual is placed makes an important initiative in the achievement of the *learner. Children* differ in their several behaviour at any stage of their development on account of a great influence which is exercised on them by the culture and customs in which they are born or live. The same is the *difference* in tradition that is taken care of by the environment in the urban and rural areas. The economic *status and* the cultural background *of the area! locale* in which one *dwells marks* his specific areas of interest according to that. Hence, a child from an *urban area facing* more dynamic situations tends to be more creative than one in the rural area.

STUDIES :

Aaran and Malatesha (1969) explored that there exists nc significant *difference* in creativity among urban and rural students Sehgal (1978) also reported similar findings. On the other hand Sharma (1974) and *Gupta* (1988), reported *that the rural students* were more creative than the *urban,* whereas *Goyal* (1973), Srivastava (1978; *Singh* (1979), *Jain* (1977) and *Singh* (1992) reported that the urbar students more creative than their rural counterparts,.

Studies in the area of environment have some of the findings Cordial parental relationship, democratic attitude of parents acceptance of the child by parents, and relationship with younge siblings showed a *direct* and positive relationship with *creativity. Girl perceiving* high stimulation in home environment and *normal situate* in school environment had *higher scores* on overall creativity ar original aspects of it Subjects whose parents were highly educate: highly *placed* were more creative than those whose parents had lc education and low placement. Schools with open climate we conducive to the development of *creativity* as compared to scho; with closed environment

Regarding the interactional effect of different environments on creativity, one finds inconclusive and contradictory results. Hence it raises a pertinent question. How far do different environment groups differ on the creativity aspect of the students belonging to them? For the purpose of the present study, the following hypotheses were formulated :-

H1 :   High level of school environment/high home environment group of urban locality is the highest on the criteria of creative abilities than the other groups.

H2 :   Low level of school environment/low home environment group of rural locality is the poorest on the criteria of creative ability than the other group.

H3 :   The creative ability of the urban group of students is significantly higher than the same groups of rural locality.

METHOD

Sample

The Sample of the present study consisted of 400 class-iXand 400 Class-X students of urban and rural localities of Bilaspur district, Madhya Pradesh. The Schools of high and low level were choosen on the basis of random sampling techniques on the basis of academic results of three consecutive years of board examinations and with the opinion on the general reputation of the schools by experts. The schools and students selected as above are shown as below >

p.	Type of Schools	Locality	Class	Students		Tota
				Boys	Girls	
1.	High level	Urban	IX	50	50	100
2.	Low level	Urban	IX	50	50	100
3.	High level	Rural	IX	50	50	100
4.	Low level	Rural	IX	50	50	100
5.	High level	Urban	X	50	50	100
8.	Low ievei	Urban	X	50	50	100
7.	High level	Rural	X	50	50	100
8.	Low level	Rural	X	50	50	100

Through the two levels ofschooi environment, two main groups of students were identified-high level school environment (High-Aj and tow feve! school environment (Low-B). Within these two groups, further sub-groups were set up on the level of the home environment of urban and *rural* localities. Thus, the students were classified into eight sub-groups reflecting the interactions ofschooi environment, home environment and locality as given below:

Groups	Locality	No.of Students		
		K	X	Total
High level of School environment and high home environment	Urban	35	40	75
	Rural	37	32	69
High level ofschooi environment and low home environment	*Urban*	10	9	19
	Rural	23	20	43
Low level school environment and high home environment	Urban	10	8	18
	Rural	14	12	26
Low level ofschooi environment and low level of home environment	Urban	40	27	67
	Rural	38	35	73
Total				39C

Thus, the main study was confined to 390 students only.

Tools

The following tools were administered on the sample:
1.   Divergent Products ^ Abilities   -   Sharma
2.   Famity Environment Su lie (RE.S.)   -   Sharma and R

The scores of Divergent production ability of different grc students were statistically treated for the t-value. The data so obta have been presented on table *HoA* for class IX and table Nc class X.

Table-1

IVlean Difference of creativity ability for significance among
different environment groups :Cfass-iX

Si. No.	Groups	M	"^SU—	i l	t-vaTue	Significances
A1	High level of school environment & high home environment of urban area.	63.17	9.46 431-3	701-2 0.315	NS	NS
A2	High level of school environment & high home environment of rural area	64.78	1Z07 431-5	561-4 0.474	3,007 NS	P<01
A3	High level of school environment & low home environment of urban area	62.10	9.51	471-6 731-7	0.911 2.23	NS P<01
A4	High level of School environment & low home environment of rural area	55.47	9.73	711-8 452-3	1.35 0.64	NS NS
B5	Low Level of school environment & high home environment of urban area	59.50	11.13 45 2-5	582-4 1.11	3.13 NS	P>,01
B6	Low Level of school environment & high home environment of rural area	66.07	11.49 752-7	492-6 2.63	1.833 P<05	NS
B7	Lowlevel of school environment & low home environment of urban area	57.60	11.82	732-8 313-4	1.86 1.81	NS NS
B8	Low level of school environment & low home environment of rural area	59.94	10.81	183-5	1.60	NS
				223-6	0.896	NS
				483-7	1.13	NS
				463-8	0.576	NS
				314-5	3.65	P<01
				354-6	3.01	P<.01
				614-7	0.734	NS
				594-8	1.62	NS
				225-6	0.95	NS
				485-7	2.87	P<01
				465-8	Z47	P<05
				526-7	2.32	P<.05
				506-8	1J8	NS
				767-8	0.914	NS

Tabled

Mean Difference of *Creativity Ability* **for Significance among** *different environment groups :Cla$s-X*

Si. No.	Groups	M		"Df	t-value	bigniti- cances
A1	Higfi level of school environment & high home environment of urban area.	61.52	20.82	701-2	1.06	
				471-3	1.15	NS
				5^-A	2.25	P<.05
A2	High level of *school* environment & high home environment of	66.31		461-5	0.13	NS
				501-6	0.19	NS
				651-7	0.54	NS
A3	High level of school environment & low home environment of	53.22	l\l\7	741-8	1.07	NS
				392-3	2.23	P<.05
				502-A	4.06	P<.01
				382-5	0.63	NS
A4	High level of School environment & low home environment of rural area	50.85	5.18	A22-S	0.65	NS
				572-7	2.04	P<05
				662-8	2.64	P<.01
				273-4	0.79	NS
B5	Low Level ofschooi environment & high home environment of urban area	S2.50	7.24	153-5	2.00	NS
				m-S	1.58	NS
				343-7	1.59	NS
B6	Low Level of *school* environment	62.75	15.31	433-8	1.01	NS
				264-5	4.81	P<01
				304-6	3.22	P<.01
				454-8	2.32	P<05
				544-8	2.50	P<.05
B7	Low level of school environment & low home environment of urban area	59.22	9.37	185-6	0.42	NS
				335-7	0.91	NS
				425-8	1.24	NS
B8	Low level of school environment & low home environment of rural area	57.38	11.07	376-7	1.03	NS
				466-8	1.32	NS
				617-8	0.60	NS

RESULTS & INTERPRETATION

Different groups of students were compared on creativity abilities !t is evident from the above two tables that high level of favourable home environment *plays a significant* role in *creaWve* abilities. This is evide *from* the higher mean values in *creative abilities of all* the hig

home-environment groups than the low ones.

It has emerged, that the group of high level school environment with low home environment of rural areas has the lowest creative abilities. The trend of lower creative ability of the groups having the combination of low home environment is clearly seen from the above tables. They did not show the consistent results for the highest values of creative thinking in Class IX and X.

It is also seen that the rural students did net differ significantly form the similar groups of urban students on the creative ability. On the basis of the above results, all the three hypotheses formulated to test in the present study were rejected.

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RECEIPENTS OF AWARDS AT XII ANNUAL CONFERENCE OF AIAER HELD AT AMBALA CITY IN DECEMBER 1999

YOUNG RESEARCHERS BELOW 40 YEARS

North Zone
Dr. Vivek Kohli, *Lecturer, SLDAV College of Education, Amba \ City*
Dr. (Miss) Neelam Luthra, *Lecturer, SLDAV College of Educatic Ambala City*
Dr. (Mrs) Harvinder Kaur, *Lecturer in Education, Dept.* **I** *Correspondence Courses, Punjabi University, Patiala.*
Dr. (Mrs)Pushpinder Kaur, *Lecturer in Education, Dept. : Correspondence Courses, Punjabi University, Patiala*

West Zone
Mr. Girish **N.** Gajera, *District Institute of Education and Train.' Rajkot*

SCHOOL TEACHERS
North Zone
Ms. Manju Malik, Head *Mistress, DAV Centenary Public Set.: Poschim Enclave, New Delhi*

West Zone
Dr. S. M. Ghetiya, *Teacher, Masum Vidyalaya, Rajkot*

PORTFOLIO IN TEACHER EDUCATION

V. K. Agrawal

INTRODUCTION

In simplest term, portfolios are collection of work samples of an individual to illustrate his/her accomplishments in a talent area For a photographer his best photos, for a musician his best performances, pieces of artwork for an artist and best composition of a composer are the samples for their respective portfolios. For a teacher a portfolio is a collection of pieces that provides evidence about the teacher's effectiveness. Collins (1992) defines portfolio"——— a container of collected evidence with a purpose. Evidence is documentation that can be used by one person or group of persons to infer another person's knowledge, skill, and/or disposition." To Winsor and Eilefson (1995) portfolio is" A fusion of processes and product. It is the processes of reflection, selection, rationalization, and evaluation, together with the product of these processes." A teacher's portfolio can ba structured around key dimensions of teaching. Lesson plans, unit plans, evidence of innovations, notes on interactions with parents, video or audio cassettes of lessons delivered in the class, samples of teaching materials, diagrams of classroom arrangement, inspection reports, students' progress sheets, evidence of help given to the colleagues, professional publication, Principal's remarks about the teacher's performance, letters from parents, cassettes of talks delivered on radio and/or TV, tests administered to the students, samples of students' work, feedback from students and a host of evidences to show the teacher's growth over time.   "

Portfolio in teacher education has recently received increasing attention for many reasons. Firstly, portfolio assessment is authentic, catholic and dynamic encompassing convolution of both learning and learning how to teach. Secondly, the students become responsible partners in documenting the achievements and responsibility of collection of evidences of progress shifted to the learner. Thirdly, it equips

both the teacher and learner in the process of evaluation as intentional and purposeful activity.

CONTENT OF A TEACHER'S PORTFOLIO

Content of a teacher's portfolio could broadly be placed into four major categories. The cover letter, the course content, a statement of participant's philosophy of teaching which the teacher subsequently revises based on learning and other vicarious experiences and puts final draft at the end of the course, 'demonstration of sustained effort and reflection in the form of a substantial project involving extended development and a critique of the project explaining its development and its relevance to the student's continued professional growth.' (Wichita State University College of Education, 1991,). To be more specific a teaching portfolio should contain:

Lesson plans.

Unit plans.

Pupils' learning evidences.

Evidences of lesson transaction in classroom

Reflective statements of teacher.

Evidences of the teaching material produced.

Critiques of teacher's experiences gained inside and outside the classroom(s).

8. Material demonstrating learning over time

9. Evidence of organisation and achievements in co-curricular and extra curricular activities.

10. Record of teacher's continuous evaluation authenticated by the supervisor.

The list is not exhaustive and more relevant items can be added in the list. The evidences may be collected in the form of written documents, statements, endorsements, photos, audio and video cassettes.

PURPOSE OF TEACHING PORTFOLIO

In general purpose of teaching portfolio is to help learners become

integral and conscious participants in learning process, however, portfolio development in teacher education can serve the following specific purposes:

Self-reflection

Reflection is the interpretation of learning experiences for self and others. In course of interpretation the teacher analyses the action (s)he has just taken or about to take and becomes critical of his/her own behaviour and motives. Portfolio provides concrete record of selected and significant events, which strengthen the process of interpretation and devising strategy for further improvement Richart (1990) has shown that portfolio helps student teacher to remember classroom events more fully and accurately and focus their reflection on content and content specific aspects of their teaching.

Portfolio preparation stimulates the learner to think about what he does and why. Reflective teachers who actively display elements of systematic decision making can integrate their observations, interpretations and analysis of classroom events within their daily practices.

Document Accomplishments

Portfolio seeks to give evidences of a person's accomplishments. A pupil- teacher collects samples of his/her best performance in the class and also outside the class. It is a record of the different aspects of achievements. A teacher's accomplishments may consist of evidence of pupils' learning, material demonstrating teacher's own learning over time, reflective statements of the teacher, pieces of creative writings reviews of journals, appreciative remarks from the head and parents, record of contribution to the pupils' development and contribution to community, his /her own contribution in co-curricular and extra curricuiar activities and any other typical achievement during the period. In the process, the teacher develops the skills of collecting, selecting, assembling, reassembling and communicating to self and others.

Document Change

Portfolio process can also be successfully employed to record change in particular area or skill of learning. It will be comparatively narrower in scope containing information only about the area or skill the teacher

intends to improve. For example a teacher who has been rated poor in communicating skill in classroom would decide to undertake activities helping to improve the skill like reading the relevant books, listening to radio talks, observation of lessons delivered by peers, thorough preparation of lessons, recording of lessons transacted in the class, feedback from the students etc At the end the teacher may have four or five ratings of his/her communicative skill in the classroom situation for portfolio. The content of his/her portfolio will help to evaluate the teacher's performance and chart improvement over the time. Further strategy can be devised in consultation with senior faculty members to achieve the goal of the desired standard.

For Employment

Portfolio can provide deeper insight into the taste, attitude, and evidence of various skills of selection and analysis to the prospective employer. If properly evaluated, the employer can decide the suitability of the candidate on concrete evidences. The prospective teacher can use the portfolio as dossier to help them in placement interviews. A well-prepared portfolio allows enough scope to the employer to estimate ability and suitability of the portfolio developer for the job.

As an Evaluative Strategy

The main focus of any teacher education programme is to prepare the prospective teacher for different roles in school. An authentic evaluation should measure the extent to which the desired knowledge, understanding and teaching skills have been acquired by the teacher. Portfolio offers evidences to assess quality of performance in these areas. When used in traditional merit evaluative process, it enables the prospective teacher to provide evidence of success to the evaluator. The evidences in portfolio assessment could be students' progress chart, understanding of philosophy of education, psychology of child's growth, use of appropriate educational technology, pedagogical success, application of theory to varying situations, personality traits of the teacher, evidence of goal achievement and a host of such other evidences. In fact the material presented in portfolio is a potent tool to concretise the achievements in the hands of evaluator. Teacher portfolio can play a significant role in grading their performance.

However, interpretation of students' work through portfolio medium

is subjective and value based. It is very difficult to develop a standardised tool to evaluate a portfolio and make it comparable to the others. Varied contents of portfolios of different students often puzzles the evaluator in his efforts to be objective. _

The intensity of subjectivity could be reduced if assessment is done by a committee instead of a single teacher on mutually agreed norms developed by taking into consideration the local and cultural contexuality. The committee may assess the work based on the skills of collection, relevance and reflection of teacher's responses, equality and accessibility to resources and opportunities. Teacher's self-evaluation and free write up could also support grading.

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TOWARDS VIRTUAL ASSOCIATION AND NEO-RESEARCHERS (PRESIDENTIAL ADDRESS AT 12TH ANNUAL CONFERENCE OF AIAER)

I am thankful to all of you for organizi ng the 12ᵗʰ Conference of All India Association of Educational Research at Ambala. I wish to express my special thanks to the hosts and pay special regards to all the guests who have graced the occasion by their presence. I am also grateful to the authorities of IGNOU-UNESCO Chair that have permitted me to participate. I welcome the delegates who are participating with full vigour and anticipation.

I recall the lucky day when Principal D.P.Asija had expressed his willingness to host this Conference. He accepted the challenge subject to the approval of his people. He got the approval his people. It was to happen so. Dr.Asija is sweet person and is" a dedicated leader. We thank you Dr.Asija.

Dr.D.P.Asija had planned to organize the Annual Conference along with the celebrations of his college. Today this conference has up-scaled the College-celebrations; and thus Dr.Asija has been able to use the local goodwill for the benefit of this Conference. As a child, I used to play a game, "Chit Bhi Mera Aur Pat Bhi Mera". Dr.D.P.Asija today appears like a captain of such a game. He has become a win-win person in all the situations. He has not only enhanced the honour of the College but helped the Association as well. Humour apart! Let me put it on record that Dr.Asija has worked very hard to keep up the Glory of the DAVs.

SOHAN LAL COLLEGE OF EDUCATION

Sohan Lai College of Education is the leading teacher education institution of the country since its very inception. I can recall its ever-increasing popularity. In 1960s, while I was a campus-student of Panjab University, Chandigarh I used to hear many good words about the functioning of this college. Those communications formed images of

<u>awe, and glamour.</u>   Based upon this awesome image, I formed interesting perceptions with teacher education. As a student, i had an urge to visit this institute/college. Now, as a member of the AIAER team, I have come here today and the old aspirations have been revived. Even today, I want to say that your institution carries the same fragrance that I have experienced forty years ago. Let us commit ourselves to build such fragrances of teacher education in other places as well.

Late Shri Sohanlal Ji, the founder of this institution, was a great philanthropist. He was a man with constructive ideas and was a social activist. The creation of this institution in the city of Ambala, which he brought from Lahore has been a great contribution. Today, the institution has achieved the status of a Rishi —the Sohanlal College of Education— meditating in the foothills of the majestic Shivaliks (Himalayas). The emerging pedagogy of this institute is not only serving the cause of education in Haryana but is retrieving the <u>pedagogy of the Pandavas</u> who played their salutary roles in the holy lands of Kurukshetra. We have assembled here in the world of today to pursue the same mission in a modern context of improving educational research. Our humble respects to Late Shri Sohanlal Ji, the great visionary.

THE OLD MILLENNIUM GIVES IN TO THE NEW

We are happy that the Conference of the new millenium is being organized on a theme of teacher education. The theme, 'teacher education 'is indeed an interesting one. I have special interest in theme as I have worked as Vice Chairperson of National Council for Teacher Education.

Teacher education will create a new energy for a new transformation. Am I expressing self-fulfilling prophecy? Is it the media impact that persons have started to write in a mood of mindless hysteria? It is like a politician talking to the nation that India is great and it will emerge as an economic giant. It is like Sri Aurobindo saying that India will emerge as a pathfinder for the world all around.

We wish to bring in <u>structural changes</u> all over the globe. The new human endeavours should transfer the centre of development from the temperate rich countries to the Asian equatorial lands, from the science laboratories to spiritual fields, from logic-based management

to intuition-based management, from war-oriented strategies to peace-oriented economies, from over-industrial developments to information-based technologies, and so on. It is very difficult to foresee the future—what will happen? But it should not be difficult to choose—what should happen. We should be abie to state our preferred futures, construct the alternate futures, and attain the plausible futures.

The end of the second miilenium by itself has no special significance. There is no substantive reason for calling it a year of special significance except the number 2000. The whole matter is symbolic. This point of time is important because we are following a particular Calendar; otherwise, there is nothing special on 31st of December this year or any other year. Today is not wonderful because we have overcome the problems that were emanating from Y_2K. We have been solving such problems year after year. Today, is not wonderful because we find that more liberated economies are operating over a large part of this globe. Therefore, let us find substantive reasons for calling today a wonderful point of time.

One substantive reason is that we are the 'first generation of this mankind' that has seen the all-round view of the Mother Earth from far away space. It is the first ever Darshanas of the Mother Earth in its full beauty and perfection. More so, we have seen her in relation with other heavenly bodies as they rotate on their respective journey through space. This Darshanas has given us new perspectives. It has transformed our old perspectives. The transformed perspectives have changed our insight and heightened our excitement and expectations. As the astronauts say, we got a feel of unified humanity living on a tiny unique planet. We have understood meaning of organic unity.

There is one more reason for us, to call this moment a wonderful one. Today, Mankind has realized that science by itself is useless. *Values* alone are not enough. The isolated studies *of science* have not helped either. We have encountered people who are brilliant scientists in the mornings and blind followers in the night. We need a new vision for creating a new destiny. We are receiving signals that our future destiny will be guided by New Synergies of *science* and *values.*

These new synergies of *science* and *values* can be envisioned in the form of 'Scientific-Humanism' and 'Humanistic-Sciences'. (I am

not saying that 'science and humanities' should be treated as two isolated entities' nor am I saying that 'science and humanities" should be treated as additive entities. I am also not saying that 'science-cum-humanities' be treated as a third entity'. I am "saying something different). We need to have new perspectives comprising of two entities- (a) humanistic-sciences and (b) scientific- humanism. The *humanistic-scientists* will be pursuing sciences, with *feelings;* and *scientific-humanists* will be pursuing humanities with *reason.* We have to therefore, construct a <u>mega framework</u> so that this issue may be understood in detail. We have to decipher these two entities and harness new synergies.

The first entity, namely, Humanistic-Sciences will pursue sciences with a view to incorporating a humanistic touch. A framework of the general welfare of Man will guide the choice of scientific problems and programs. All the activities, like scientific experiments and working methods, will abide by the framework of ethics and ecology. The principle of observations and verifications will guide the conflicts if any

The second entity, namely, Scientific-Humanism will pursue humanism with a view to incorporating openness and experimentation. There will be no place for fundamentalism. One may arrive at a consensus by the process of sharing experiences. There would be no place for objective verifications. Laws of experiences and consistency will govern all activities, like socio-psychological discourses and practices.

It is interesting to note that both Humanistic-Sciences and Scientific-Humanism will undertake *experimentation* as one of their major methods of action. The former will conduct experiments with the 'outside-world' and the latter would deal with the Inside-world'. We hope that the two entities will not collide in their operations. The task of balancing the two entities may require some coordination, such as, a framework, which would act like a chassis, which holds the two wheels of a chariot and rotates them simultaneously Our immediate need is a chassis and perhaps steering wheel too.

This chassis or coordinating framework will comprise of four <u>perspectives</u> (three component perspectives and one arch perspective). The component perspectives are (a) scientific

perspective (outside journey), (b) psychological perspective (inward journey), and (c) social perspective (relationship between the perspective person to another person perspectives). The cosmic perspective is an arch perspective for the three perspectives. It performs its function very much like the conduction of a symphony orchestra such as the directional role of Zubin Mehta in guiding the respective roles of each of the members of his symphony orchestra. As researchers, we have to undertake our respective studies following a particular direction.

It is difficult to work with these concepts. Some of us are skeptical about such concepts and such claims. Others keep aloof by saying that these directions are nothing but jugglery of words. A few others stick to their Old Forts of fundamental stances. To proceed ahead positively, we have to devise new inputs. We must therefore handle this issue judiciously at this critical juncture.

I am not very dear today how to go about. However, I have vague notion of hope. We must therefore, construct new concepts. May be our future conferences should take note of this opportunity. We should be able to confront the threats from violence and depleting resources. We should create an environment for facilitating the optimum utilization of human potential of aH living beings (not human beings alone) so as to manage the destiny of Mother Earth.

THE ASSOCIATION

Over the years, we have witnessed that the Government bodies have been playing decisive roles by developing various policies of education. The Planning Commissions, Task Forces, Official Committees, and other bodies have been very active throughout. The. official bodies like NCERT, NCTE, UGC, DEC, NOS, KVS, and so on have also made their contributions. These bodies have helped in preparing the policies and then tried to implement the programs with top-down approach. The professional associations did not occupy the centre stage. My request is twofold. First, the associations should augment their strength and play a meaningful role. Second, we should consider working with a bottom-up approach. I know that the professional associations of Canada say Teachers Association of Saskatchewan

is powerful. The Canadian Government listens to these bodies.

In another paper, I have spoken ten Models of Educational Development. I have visualized a greater scope for educational associations by teacher unions. The unions will be creating professional environment. The self-contributory budgets and academic strengths must be upgraded. It is hard path but very essential. Labour-managed enterprises (like workers' cooperatives) are a good idea, whose time has not yet come. This model has yet to emerge where teacher-unions and/or parent-unions and/or even student unions operate their own educational systems on professional and cooperative lines. We know the examples of 'Ghotus' tribal boys and girls who manage their life affairs themselves. Kibitzes in Israel is another example where children manage their activities by themselves. The ZLP (zero lecture program) of Indore could also be small example of this type. Let our association start doing so.

What is the status position of the professional associations for the task of planning the various policies of education? The official custodians of education have consulted the teacher organizations and professional associations as and when possible. However, there has hardly been any impact of consultations. Therefore, we ought to change the roles of the professional associations. Perhaps, we visualize the role of professional associations as responsible for formulating the policies. Therefore, professional associations, governments, and other stakeholders could be for executing the programs.

I am searching for success stories where the professional associations or volunteer groups have taken lead roles. I recall the examples of Mahatma Gandhi and Zakir Hussain. On their own, the two great visionaries formulated educational policies one such being the Nai Taleem. I also recall the work of KSSP[1], HSTP, Eklavya, Digantar, BJVJ, and many other organizations working in different parts of the country. We find that non-government organization (NGOs) and Volunteer Associations (VA) have emerged as significant partners in the process of policy planning.

The AIAER, along with other professional bodies, like, IATE, AIAET, etc., has to play proactive roles on issues of national significance. We should not only provide a professional post-event

critique but should also be proactive. We could give <u>trans-boundary viewpoints</u>. We could become theoreticians and activists at the same time.

Along with the National Policy of Education, we need to develop the local policies. How do we initiate it at our own level? There is no one golden path. In fact, there may not be any given path. The experience is lacking. We have not even dreamt for it. Each member of our Association may undertake Action Research for finding the path. Let us reduce the size of the problem. We may not talk of nation, state, and districts. We may start talking of one school, or one family, or one child. You may go on reducing the size till the problem falls within your means. You may involve teachers in village education policy. To some cynic, it looks like a mad idea. It is not. Try to experience the truth.

Let me say a few words about the Association. In early eighties, a few teacher fellows at the Centre of Advanced Study in Education (CASE) at MS University of Baroda, Vadodara imagined the formulation of an association of educational researchers. At that time, there were a few other organizations operating in their own boundaries of subjects and regions. Each one of them had their focus viz., development of teacher education, development of educational technology, study of comparative systems of education, development of pedagogy of mathematics, nurturing of educational progress, and so on. These organizations did not have exclusive focus on educational research.   The <u>past Presidents</u> of this association have been the great doyens of education in India. Their contribution has been substantive in directions and contents. We are proud of their leadership. Our regards of appreciation and gratitude to all of them[2].

An organization receives its strength from its <u>members</u>. They provide the base and fuel. They are both the roots and the flowers of the organization. When many minds pool their thinking without the fear of uniformity, I am sure, the results there of, are always very productive. I believe neither in blind uniformity nor in objective standardization. Let us work like Japanese where decision are taken on the basis of water iogic and not on the basis of rock logic.

Likewise, the <u>executive members</u> play their regulatory and

developmental roles as well. I know that the executive members of the association have shared their responsibility of developing this organization. They have coordinated the efforts to expand the membership in their respective regions and they have served as an interface between the mission of our Association and the ground realities.

We are working in a system, where some members are operating as meta-members belonging to one extended family. We have many well wishers and guides, who are supporting us in many different ways. We are grateful to the senior academics and managements, such as the National bodies like NCTE, UGC, NCERT, NIEPA, Governments, Universities, and so on for their support, contribution and guidance. Our network should grow so that we are able to address the national and local concerns of education.

THE PAST

Your association has been growing over the years in terms of its objectives, structures, membership, academic diversity, and the involvement of field institutions. Growth has its own pain and pleasure. The themes have ranged from teacher education, professional development of teachers, quality of schools, action research, educational technology, and so on. The past themes of our Annual Meetings have been chosen around the burning issues of education. The deliberations in the forms of written papers, delivered lectures, organized discussions and recommend resolutions, have been arranged. Our resolutions have wider implications for policy formulation and program implementations. I can recall many significant papers that were read during conferences in the past.

THE PRESENT

We are not simply growing linearly but developing symbiotically. The Association has its headquarters in Orissa. The Journal of the Association is being published by a group of dedicated members from Orissa. The membership has increased in number and diversity Many lady members are joining the Association. We have to be sensitive to

the gender issue in society and in education. Likewise, we have to encourage membership from the disadvantaged groups. Many youngsters and senior academics are participating in our meetings.. Members are joining from different sectors like schools, colleges, universities, national organization, private bodies, retired sectors, and so on. Our academic themes are becoming more relevant for guiding the practices on one side and improving the scope of theorization on the other.

Last year, we formed State Chapters for our Association. On the basis of consensus, the State Officials and other members of State Chapters we nominated. Some of the State Chapters have started functioning and organized few programs under the banner of 'State Chapters of the Association*. Punjab was the first start to undertake the organization of state level activities. We may adopt MARS (mass action research by schoolteachers as a critical path to solve our problems of district level associations)

May be, we can extend our association to a the third layer as well i.e. of our association extending from National to State to District. The third layer may be carved with the help of geo-cultural parameters. We need not follow the administrative districts as units of operation for the third layer. Perhaps, we might have to draw our own geo-cultural maps for identifying unique cultures (by including such parameters, which are friendly to educational research). We may undertake ethnographic studies for the formulation of these geo-cultural units for extending future aspects of our associations.

In addition to the above, we may think of adding Functional Chapters. We may analyse the processes of education and add salient chapters on selected themes such as, aims of education, curriculum designs, educational technology, and evaluation.

We could also think of adding Sectoral Activities by classifying the target groups that the association desires to serve on priority. For example, we have some sectoral activities concerning women, disadvantaged groups, ignored minorities, talented children, research managers, and so on.

We must look into financial resources. If we do not create funds then we cannot undertake quick studies and publications. If we collect

more money than required, it creates many unwanted side effects, Someone should guide us as how to go about fund collection. From where will the money flow in? Where should the money be sent? On what items do we spend the money? What proportion of money should be generated at the Headquarters, what proportion at the State Chapters, and what proportion at some other levels. At present, it is any body's guess.

THE FUTURE

It is desirable to be futuristic in our directions. The programs of the association consider the preferred futures of different layers of the society. We may make efforts to know the data of the past developments and apply different methods of projections. We should predict ail possible patterns of growth for the futures. Thus, we may work out long-term and short-term plans.

The tasks of predictions are neither easy nor certain. Many unexpected variables creep in. Such variables create new discontinuities and may bring breakthroughs. For example, the emergence of the Internet and teleconferencing has influenced the nature, frequency, and the conceptual theorization in the area of professional associations.

Related to professional associations, let us focus on a few expected changes. The idea of distances will die. Even the concept of time will lose its meaning. We may be interacting with people who may or may not be members of the association. We may find age diversity amongst the members with whom we would be interacting. These extra-membership interactions could help us in many ways,

The idea of membership will be transformed. The meaning of professional communities will undergo radical changes. New definitions of memberships will be constructed. 'Distributed members', whom we have never met in our lives, will replace the old definitions of communities of professionals residing in a compact place of a known neighbourhood. Yet, the interactions with such a varied group of members could be frequent and fast. We may even become interdependent in our ventures. Memberships from different countries may collaborate and cooperate on our local issues.

It is going to be a world of professional associations of strange intimacies (Intimacies with 'unseen' but known persons). I have developed a paper 'New Visions of Professional Development' where I have visualized that we may be having smail-sized associations of two members and large-sized associations of millions of members. These millions of members will be distributed all over the world. They may be isolated geographically yet can interact intimately, from their respective places, by pursuing their own pace, by following their own language, by choosing topics of their concern, and by operating from their own level of intensity It is going to be interesting.

I can recall the model of a Telephone-Exchange Association where a large number of tele-members talk over the wires, facilitated by the tele-exchange. In a similar fashion, any member of the association can talk to any other member in multiple ways. The topic of their discussions, between the telephone-talkers, depends upon the concerns of initiators and responders. They will use their own language. The speed of the dialogue wili be adjusted depending upon the capacities of the talkers. The nature of the discussions will depend upon their depth of intimacy and the height of their cognitive strengths. The message can be communicated synchronic^ly or a-synchronically. There can be multiple partners engaged in their internal mechanism of tele-conferencing.

The nature of the associations could range from virtual association to family-like- associations. I wili not describe in detail family-like-associations for paucity of space. Briefly, I will visualize that the family-like-association may have its written constitution. It may have its own monograph, its own mono, its own songs, its own journals, its own publications, its own symbols, its own greeting methods, its own annual days, web e-mail lists and so on. The structure of the family-like-associations could vary with times.

Similarly, it would be useful to announce Conference themes well in advance. Perhaps, a Five-Year Calendar can be a starting point this year. Serious members can start to present research based papers,. The themes for Annual Conferences of the future should be decided by organizing close interaction of the members and officials of the association. We will be identifying the host institutions for the next conferences. I wish to suggest that we should take decisions on a five-

year basis. If the members agree, we should decide the year wise themes, venues, for 2000, 2001 2002 2003 2004.

We should also decide whether we could follow the fixed schedules of fixing dates for organizing these conferences. Can we organize the conference starting on Fourth Sunday of the concerned year? If we agree to this we can Interact with our local clientele and plan our calendar accordingly. In case there is any difficulty in organizing the conference on that day on a particular year, we are always free to adjust the dates accordingly. But we should also agree that the genera! directives of fourth Sunday would give us parameters of scheduling our future activities.

We should also decide the possible dates/months for our State Level Conferences. Perhaps, we would like to spread the schedule of State Level conferences throughout the twelve months. We may think of organizing the state conference starting on the second Sunday of all the twelve months. A few states should opt for January, a few should opt for February, and a few may opt for March and so on. If this schedule is known in advance, we may accommodate external visitors for the state conferences.

We may also make our own web page more functional. Just as with print material e.g. the journal, we may have an editorial team for the web. By adding such activities, our association will be multi-model, multi-sites, and will be in operation throughout the year

We may organize teams for Annual Yearbooks emerging out of the deliberations of the conferences. The host president may publish the yearbook by following the guidelines developed by the editorial teams for the yearbook.   If we use such concepts for our Association and our conferences, we have to transform our perceptions. The futures of our professional transactions will change. The scenarios could be pleasant on one side and horrifying on the other

THE DREAMS

As an Association, we must reach all the countries. We need to find and appoint one volunteer-ambassador for one country. This ambassador must enrol (preferably paid or even unpaid) in a period of one year. We are developing the slip-lists. You may choose the country

of your choice from the country-slips. Fill the country slip form, and the common consolidated reference register. For your convenience, the list of some of the countries³ is being given. There could be invited-members from countries who cannot pay the membership fee. We need someone to dream and coordinate.

Let us dream one more dream. Our association should find a legitimate place of membership to field activists even if they are illiterate. Recently, we had encountered an interesting experience at the South Asian Conference organized at the University of Delhi. We had invited a few semi-literate-field workers, as the regular participants. These semi-field activists derived their own theories from their field actions. They shared the same with all the participants. Both the university level participants learnt the scope of activists and the field level workers could see the use of theory. Both the parties gained.

We know many persons, who were illiterate and yet who were wonderful leaders and excellent theoreticians. Literacy is "very-very" useful **but** not necessary for creating knowledge. Indigenous knowledge making processes should be identified and legitimized. In fact, it is interesting to state the facts that the pre-iiteracy man was acting in the field and experimenting with the problems, he was constructing his. knowledge on the basis of his actions. This knowledge was relevant and cumulative. The pre-literacy man had an adequate quantum of knowledge although there was no written language. I need not justify these assertions any more.

! urge to say **that** our membership may not be restricted to the urban **elite and** the tertiary level academicians. By design, we should invite people engaged in the process of community pedagogy and jnfQJJTialpedagogy. These persons could be seen in the form of the craft masters, the amateur youngsters, the masters in Gharanas, the grandmother in the house, the village leaders, the hill-climbing porter-Gorkhas, **the** fishermen of the ocean, the quiet housewives, and so on. Ail **these** experts possess their own indigenous knowledge; they have their **own** pedagogy and their own clientele. We should be careful about the pedagogical processes of involving these groups in our activities.

Some of **the** dreams do get realized some day. Images lead to dreams- to hypothesis- to new plans- to local programs-to practices-

to movements and then become a part of culture. I have witnessed the long journey of such a dream being realized. To give a few ideas,! wish to share the idea of the National Children Science Congress of the 80s. We were organizing the annual meeting of the Indian Science Congress at Indore. Devi Ahilya University was the host institution. While planning and preparing for the Indian National Science Congress, an idea stuck to us. The idea was that why do restrict science congress to adults alone? Why cannot be have an Indian science congress for the children as well? The idea gathered momentum, a team started working for the ever first Children Science Congress' at indore. I was an active architect of that idea.

Within a period of two months, we were able to succeed. We were able to reach the schools, oriented the teachers, and Invite the children to undertake field-based study. The children of Indore related their studies to many aspects of life, and link them to their school subjects. They prepared the materials for public presentations. We arrange subject-based judges. We had to create organizational support material, identify the host schools and so on. The winners, the young scientists, interacted with the adult scientists attending the Indian Science Congress. In fact, I recall that children had the chance to interact with two Noble laureates that were the chief guests of the Indian Science Congress. The idea of Children Science Congress clicked and as continued over the years. Meanwhile, the department of science and technology, government of India has support to this idea. It is now a well recognized movement in India.

By such examples, I wish to say that we should not get upset about the on-going limitations of definitions and practices. You may not be tight followers all the times. It is sometimes useful to become a good lawbreaker. Gandhi Ji did it at the time of the Salt Movement. Same way start saying that the educational researcher could be drawn from any group engaged in the task of serious deliberations related to the processes of education. There could be children-researchers, teacher-researchers, parent-researchers, and community-researchers. We are not interested in the formal labels. We should be interested in their capacity, commitment, and creativity.

THE PRESENT THEME: ISSUES IN TEACHER EDUCATION

The promises of this Conference were made on the <u>lovely soil of</u> 'Sidhwan <u>Khurd'</u>. The present theme was decided in consultations with the delegates present at that meeting. I am happy to say that the papers have been prepared on sub themes like—

° An appraisal of instructional materials and initial training.

° In-service education-practical and training research.

° Teacher education with special reference to socially disadvantaged and physically handicapped.

° Research in teacher education.

° Revolution in education through information technology.

° Teacher education perceptions and expectations.

° Education for all-global commitment.

° Role of NCTE, NCERT, UNESCO Chair in teacher education

FUTURE TRENDS

On a priority basis, we should undertake studies in the area of our concerns. The <u>in-service training programs</u> of educational functionaries including that of the teachers deserve our attention. Other than routine topics of education, the in-service programs should include motivational expertise, communication methods, computer literacy, counselling techniques, time management, interpersonal relationship, and evaluation techniques.

The <u>pre-service training</u> curriculum needs to be totally revamped through a decentralized approach. This revamping should not start from the centre alone. The role of an education is being visualized in terms of learning to learn, learning to work, learning to live cooperatively, and learning to be. The teachers should learn to become a facilitator, coordinator and promoter. The pre-service training should, therefore, be more quality conscious. The curriculum should have the basic components of total quality management, computer literacy and interactive methods of learning, management and use of libraries for human-resource development, lateral thinking and creativity, and public relations.

The <u>teacher's organizations</u> may take up the task of preparing a unified code of ethics for all teachers. This requires the acceptance by all. In order to professionalise teaching, it is necessary to bring all teachers at a level by taking a position that no teacher is too big and no teacher is too small. The All India Primary Teachers Federation, that is the biggest in India, should call a meeting of the main functionaries and all organizations should address this effort. Every organization at the first instance will prepare a code of ethics at their own levels. They will then develop and adopt, publish, and disseminate a unified code,

The empowerment of teachers and teacher education can be achieved by <u>involving the community</u>. The teacher organizations can launch programs at district and state levels. The teacher's organizations can develop professional materials relating to life long education of teachers. Likewise, the involvement of the community in surveying, diagnosing, and improving the conditions of learning could be mutually beneficial.

The teachers organizations involved in the project can plan the program for <u>each district</u>. Surveys of the existing institutions of ail levels, all categories can be conducted at a priority level. Surveys of all teachers therein- their qualifications and retraining, the frequency of inservice training courses attended by them, their needs, their professional strengths and weaknesses can also be conducted. On an average in a district, these may be 5000 to 7000 primary school teachers, and 1500 to 2000 secondary school teachers. To begin with the district based inservice education should be first arranged for primary school teachers and then for secondary school teachers. Such an ambitious program can employ multiple strategies. One district in each state must initiate immediate action for developing subsequent plans.

CONCLUSION

The <u>vast majority of teachers</u>, who are being oriented on the job, had obtained their knowledge, subject matter and methodology, about 20 years ago or even earlier. Some of them have not been exposed at all to the knowledge required by them for teaching the assigned subject. Programs for updating their knowledge, subject-wise as well as methodology-wise is necessary so as to enable them and shed off the deficiencies with which they are now suffering from to face the students

with confidence. Our Association should play a significant role in this area of concern.

Let us pool our resources. Let us plan the specific activities at the national level, state levels, functional levels, and special groups-levels for the year 2000.1 wish as all a great success. I assure you that in my personal and official capacity of the Founder Chairholder of IGNOU-UNESCO Chair, my services are available for the cause you will choose.

My special thanks to DrA.K.Sharma, Dr.A.N.Maheshwari, Dr.R.S.Khan,Dr.Md.Miyan, Dr.S.P.Malhotra, Dr.D.P.Asija and his colleagues and IGNOU-UNESCO Chair staff for their help towards the Association.

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1. The KSSP strives to — popularize science and scientific outlook among the people, — develop a sense of optimism in them, instill in them a sense of self-confidence that they can change the world and can build a better tomorrow. The KSSP expose and oppose the abuse of scientific knowledge detrimental to the interests of the majority, — expose and oppose abuse of environment, — propose and help implement of alternative models for development, — carry out R&D work to transform lab technologies into mass technologies* — The KSSP views Indian society as one divided into two groups: a minority which is continuously getting richer and a majority which is continuously getting impoverished or face the threat of impoverishment. It understands that today science and technology serve as efficient toois in the hands of the minority, the haves, in exploiting the majority, the have-nots. — The KSSP take, on every issue, a stand partisan to this majority and consequently against the minority. It strives to arm the majority with the weapon of science and technology in their fight against impoverishment, against the oppressors. Educating people is enhancing their power to understand and analyse social issues in a scientific way and help them to play a more active role in their society. This is what KSSP's slogan "science for social revolution" is all about. — The area of action of KSSP is Kerala, a Southern India state. Kerala has a total population of nearly 30 Million. Its per capita income is only about 200-210 dollars per annum at current prices. Health indices of Kerala are much higher than those of the rest of India: Life expectation at birth 72 years, crude mortality rate 6.0 (per thousand), infant mortality rate 12 (per thousand), birth rate 14 (per thousand). The nutrition level in Kerala is low, morbidity level high. Most of the diseases are either related to old age (30%) or poverty and environment (60%). The literacy rate of Kerala is near 100%, over 2 times higher than the national rate.

2. Prof.S.C.Chaturavedi, Prof N.Rajamani, Prof.R.B. Dewasthalee, Prof. Mohammad Miyan, and

    Prof. Lydia Fernandes.A.C.

3. AFGHANISTAN ALBANIA ALGERIA ANGOLA AN GUILL A ANTIGUA ARGENTINA ARUBA AUSTRALIA AUSTRIA BAHAMAS BAHRAIN BANGLADESH BARBADOS BEL-GIUM BELIZE BERMUDA BHUTAN BOLIVIA BOTSWANA BRAZIL BRUNEI BULGARIA BUR KIN AFAS O BURUNDI CAMBODIA CAMEROON CANADA CAYMAN CHAD CHILE CHINA CIS COLOMBIA COMOROS COSTARICA CUBA CYPRUS CZECHREPUBLIC DENMARK DOMINICA DOMINICANREPUBLIC ECUADOR EGYPT ELSALVADOR ENGLAND ETHIOPIA FIJI FINLAND FRANCE GABON GAMBIA GERMANY GHANA GIBRALTAR GREECE GREENLAND GRENADA GUADELOUPE GUAM GUATEMALA GUINEA GUINEABISSAU GUYANA HONDURAS HONGKONG HUNGARY ICELAND India INDONESIA IRAN IRAQ IRELAND ISRAEL ITALY IVORYCOAST JAMAICA JAPAN JORDAN KENYA KIRIBATI KOREA KUWAIT LAOS LEBANON LESOTHO LIBERIA LIBYA LIECHTENSTEIN LUXEMBOURG MACAU MADAGASCAR MALAWI MALAYSIA

MALDIVES MALI MALTA MARTINIQUE MAURITANIA MAURITIUS MEXICO MONACO MONGOLIA MONTSERRAT MOROCCO MOZAMBIQUE MYANMAR NAMIBIA NAURU NEPAL NETHERLANDS NEWCALEDONIAN NEWZEALAND NICARAGUA NIGER NIGERIA NIUE NORWAY OMAN PACIFICISLANDS PAKISTAN PALESTINE PANAMA PAPUANEWGUINEA PARAGUAY PERU PHILIPPINES POLAND PORTUGAL PUERTORICO QATAR REUNION ROMANIA RUSSIA RWANDA SAMOA SANMARINO SAUDIARABIA SCOTLAND SENEGAL SEYCHELLES SIERRALEONE SINGAPORE SLOVAKIA SOLOMONISLANDS SOMALIA SOUTHAFRICA SPAIN SRILANKA STHELENA STKITTSNEVIS STLUCIA STPIERREMIQUELON STVINCENTGRENADINES SUDAN SURINAME SWAZILAND SWEDEN SWITZERLAND SYRIA TAIWAN TANZANIA THAI-LAND TOBAGO TOGO TOKELAU TONGA TRINIDAD TUNISIA TURKEY TURKSCAICOS TUVALU UGANDA UK UNITEDARABEMIRATES UNITEDKINGDOM UNITEDSTATES USA URUGUAY VANATU VENEZUELA VIETNAM WALES YEMEN ZAIRE ZAMBIA ZIMBABWE

CONVENERS OF AIAER TASK FORCES

(The President, AIAER has requested following members to act as con-venors of Task Forces)

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COMMUNITY INVOLVEMENT : A STUDY OF AN ALTERNATIVE SCHOOL

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INTRODUCTION

One of the foremost strategies adopted by District *Primary Education Programme* (DPEP) for achieving its objectives is strengthening School-Community Organizations and *carrying* out awareness campaigns. DPEP stresses participative process whereby the \oca\ community would *play* an *active* role in promoting enrolment, retention, and achievement and *overall school* effectiveness. The school would be responsible to the local needs and priorities. Thus, an Alternative school (run *under* DPEP) is conceived to be quite different from that of the traditional school in its inception, setting, day to day functioning, dispensation of the curriculum and its relationship with the *goals* and the processes leading to the *goals, Important* decisions, *regarding* the school and its functioning are to be done taking the *community* in confidence. However, whether such things are *really* taking place in the school or they are only things of record is a matter of academic consideration. The present *study* is an attempt to examine the *actual involvement* of the community in day-to-day functioning of an Alternative School.

OBJECTIVE

To *study* the involvement of the community in functioning of an Alternative school in the tribal area of *Indore* division.

KEY WORD

Alternative School: Alternative school is a *non-formal mode* of *school* run by *District Primary Education Programme* (DPEP) to *Impart Primary* Education.

SAMPLE

An alternative school of Chunabhatipura in Dhar District in M.P. run under DPEP was selected as sample for the present study. Twenty

five community members were selected from their village *randomly,*

TOOL

A community school relationship scale was developed by the investigators to know whether the school involves the community in its decisions or not. It consisted of 30 items on which the community members had to respond from one of the three alternatives viz. agree, undecided and disagree. The statements were constructed on the aspects such as school timing, *place* where school *runs,* holiday and *vacation,* attendance concerns, teachers' role and responsibility, enrolment drives, parents' interest towards education of their children, community contribution towards school and perceptions about school. From these 30 items, 10 items were positive and 20 items were negatively phrased.

ANALYSIS AND INTERPRETATION

Analysis to the responses of the items was done item wise. For each item, the responses were tallied into various categories with percentages and chi-square values as follows. Chi-square values were not calculated when there were very little frequencies in undecided category (0 to 2). In such *cases, interpretation* was made only from percentages because the significant Chi-square value did not lead us to any view on the statement.

Table **1** : School Timing

Statement focus	Agree	Unde cided	Disa gree	Chi- square Value •
1. Appropriateness of school timing	13(52%)	4(16%)	8(32%)	4.88
2. Increase in enrolment, if shifted to evening	12(48%)	4(16%)	9(36%)	3.92
3 Increase in school duration	11(44%)	8(32%)	6(24%)	1.52
4. Inability in sending the children at cultivation time	16.64%	4(16%)	5(20%)	10.63**
5. Running the school at the time of work in the field	14(56%)	4(16%)	7(28%)	6.32*

* Significant at 0.05 level, ** Significant at 0.01 level

It was observed that there are no definite opinions regarding the appropriateness of school timing, increase in enrolment if the timing were shifted to evening, and increase in school duration.The differences are due to chance factors alone. Again, a significant majority of the group supported the view regarding the inability in sending the children at cultivation time and running the school at the time of work in the field.

Table 2 : Place, Where School Runs

Statement focus	Agree	Unde cided	Disa gree	Chi- square Value
1. Difficulty to reach the school	9(36%)	0(0%	16(64%)	-
2. More enrolment, if school is shifted to other place	17(68%)	3(12%)	5(20%)	13.76**

It was observed that the group rejected the view that it was difficult to reach the venue of the school but concurred with the view regarding increase in the enrolment, if school was shifted to other place.

Tabie-3 : Holiday & Vacation

Statement focus	Agree	Unde cided	Disa gree	Chi- square Value
1. Holiday on "Hat-Da/ rather than on Sunday	21(84%)	0(0%)	4(16%)	-
2. Declaring vacation on rainy day and working on its lieu.	19(76%)	1(4%)	5(20%)	3.92

It was observed that the group holds the view that there should be declaration of holiday on 'Hat-day' rather than on Sunday A rainy day must be declared holiday and the school should work on some other day in its lieu.'

Table 4 : Attendance of the Children

	Statement focus	Agree	Unde cided	Disa gree	Chi- square Value
1.	Inability to send children to school regularly	15(60%)	3(12%)	7(28%)	8.96*
2.	Children going to school happily without any force	12(48%)	6(24%)	7(28%)	2.48
3.	Unawareness about the attendance of the children	13(52%)	6(24%)	6(24%)	3.92

It was observed that the group agrees with the opinion that they are unable to send their children to school regularly but did not have any definite opinion about the view that children go to school happily without any force, or unawareness about the attendance of the children.

Table 5 : Teachers' Role and Responsibility

	Statement focus	Agree	Unde cided	Disa gree	Chi- square Value
1.	Unawareness regarding the teaching at school	16(64%)	3(12%)	6(24%)	11.12*
2.	Relative worth of the school	7(28%)	13(52%)	5(20%)	4.16
3.	Worth of learning at school	13(52%)	7(28%)	5(20%)	4.16
4.	Teachers' devotion to work	3(12%)	7(28%)	15(60%)	8.96
5.	School as waste of time	7(28%)	8(32%)	10(40%)	0.55
6.	Teachers' inability to teach	7(28%)	10(40%)	8(32%)	0.55
7.	Regular meeting with parents by teachers regarding the study of children	5(20%)	5(20%)	15(60%)	8.00*
8.	Well behaviour of teachers with children	14(56%)	8(32%)	3(12%)	7.82*
9.	Teachers' promptness in inquiring about absentees.	10(40%)	0(0%)	15(60%)	

It was observed that the group had no definite opinion regarding relative worth of the school with other schools, worth of learning at school, school being a waste of time, and the teachers' inability to teach well. But the group members affirmed that they were unaware about the worth of teaching at the school. They were also of the opinion that teachers' behaved well with the children. They did not agree with the view, however, that the teachers teach with interest, meet regularly with the parents, discuss about the studies of the children and visit homes for inquiry, if the children remain absent for one or two days.

Table-6 :   Enrolment Drives

Statement focus	Agree	Unde cided	Disa gree	Chi- square Value
1. Non enrolled children, despite school	16(64%)	4(16%)	5(20%)	10.64**
2. Special attention of school towards girls' education	6(24%)	3(12%)	16(64%)	11.12**
3. Non concern about the education of low caste children	3(2%)	2(8%)	20(80%)	24.57**

It was observed that the group favoured the opinion regarding the non-enrolment of some children, despite the availability of the school but stated negatively regarding the special attention of school towards girls' education and non concern about the enrolment of low caste children.

Table- 7 :   Parents' Interest Towards Education of Their Children

Statement focus	Agree	Unde cided	Disa gree	Chi- square Value
1. Non-involvement of parents in the education of wards.	14(56%)	7(28%)	4(16%)	6.32*
2. Non-utility of the study at school.	3(12%)	2(8%)	20(80%)	24.57
3. No future of students after study	2(8%)	8(32%)	15(60%)	10.15

It was observed that the *group favoured* the opinion regarding the non-involvement of parents in the education of wards. Again, they did not subscribe to the view that the *study at school* had no utility and that the student had no future after they completed their studies.

Table- 8 : Community Contribution Towards School

Statement ^ocus	Agree	Unde cided	Disa gree	Chi- square Value
no contribution of the community towards school	8(32%)	4(16%)	13(52%)	4.88

It was observed that the *group had* no definite view either positive or negative, regarding contribution towards school. The differences observed were due to chance.

Table - 9 : Perceptions About School

Statement *iocus*	Agree	Unde cided	Disa gree	Chi- square Value
1. Discussion of school matters by children at home	12(48%)	4(16%)	9(36%)	3.92
2. Satisfaction of the children at school.	14(56%)	6(24%)	5(20%)	5.84

It was observed that the *group had* no definite view regarding the discussion of school matters by children at home and satisfaction of the children at school.

DISCUSSION ;

In-case of about one-third of the items of the *scale, the* community members *could* not give any definite view. About the appropriateness of school timings, increase in enrolment if shifted to evening and increase in *school duration,* they could not view definitely. The community might not have attached due importance to enrolment or they might not have the idea of *school timings to suit the* children. Also the members

residing nearer to the school might have backed the idea of changing the schoo! timings to evening whereas, those who lived at a distance might not have felt the need of switching the timings of the school to evening due to commutation problem in the evening. Again, regarding the aspects, "Children going to school happily without any force" and "Unawareness about the attendance of the children", definite views did not come. This may be due to casual attitude and a low priority to the education for their children. The statements regarding the relative worth of the school, worth of learning at school, and teacher's inability to teach were also not viewed definitely it might be because of their mobility to make such comparisons. Their own illiteracy might be one of the major reasons for not knowing the worth of the learning or teaching, or the future of the children after completion of the studies.

The community members showed their inability in sending the children at cultivation time and also opined that the school was running when the children were busy in the fields. Almost all of the members belonged to economically disadvantage section. So, they had to send their children to the field for cultivation. Thus, this may be the reason for supporting the above statements. Again, they had a negative view regarding the difficulty to reach the school but opined positively about shifting the school to a suitable place to increase enrolment. Though the school is accessible to the children easily, still there is need to shift the school. It may be due to the fact that the school was running in a private home and lacked proper facility for drinking water. They also viewed that the weekly off day should be on "Hat-day" in place of Sunday and declaring vacation on rainy day On "Hat-day", children go to Hat for marketing or selling some agricultural produces. Also on rainy days, the children are busy in fieldwork for which they were unable to come to the school. Unawareness regarding the teaching at school may be due to illiteracy of the members. The group viewed negatively regarding teachers' devotion to their work, regular meeting with parents by teachers and teachers' promptness in inquiring about absentees. This may be due to teachers' lack of professional ethics or due to low salary. The community members also opined that all the children in the village were not enrolled and school did not give special attention towards girls' education. Teachers' inability to mobilize the parents to send their daughters to school, rising above the traditional prejudices that

girls are made for doing household jobs, might be the reason for holding to such views by the community.

SUGGESTIONS

o   There is a need to shift the school place to a suitable place where children can go unhesitatingly.

o   During cultivation time, when the children are busy in the field, the school timings should be changed,

o   The weekly off day should be shifted to 'Hat-day' in place of Sunday.

o   Vacation should be *declared* on 'Rainy Days' and school may run on other *vacation* like summer, winter etc.

o   The *salary* of the teacher should be raised so as to increase his/her self-esteem and devotion towards his/her profession.

o   The teacher is supposed to have a leadership role vis-a-vis community. S/he should play a key role in the development of the *school.*

o   *Supervisors and* block level and district level authorities should also encourage the community to participate more and more in the development of the school.

AIAERWEB SITE
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Members of AIAER may pay a visit to the Web site and give their suggesions if any to :

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