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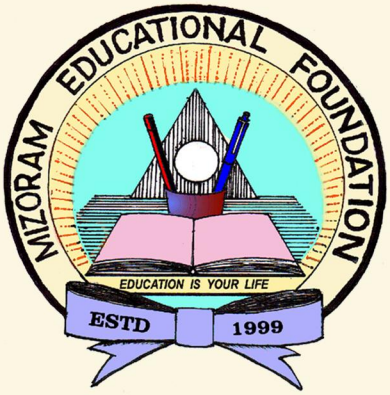

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CONTENTS

Assessment of Learning Outcomes of Class IV Children in Environmental Studies in Mizoram in Relation to MLL

C. Lalremruata *

Abstract

The present study is an attempt to address quality aspects at primary stage of education in Mizoram by assessing the learning outcomes of Class IV Children in the subject of Environmental Studies (EVS) in relation to Minimum Levels of Learning. A sample of 808 Class IV children from all the districts of Mizoram was taken for the study. A Competency-based Achievement Test in Environmental Studies was administered to the students. It was found that only 0.25% of children achieved mastery level of learning and not less than 99% of children failed to attain mastery level of learning in EVS which is very low and far from satisfactory.

Key words: *Assessment, Learning outcomes, Minimum levels of learning.*

Introduction

Learning outcomes are statements of what a learner is expected to know, understand and/or be able to demonstrate at the end of a period of learning. As a matter of fact, learning outcomes can be loosely traced back to the work of Ivan Pavlov (1849-1936) and then the work of the American 'behavioural school' of psychological thought developed by J.B.Watson (1875-1958) and B.F Skinner (1904-1990). Behaviourism emphasised the clear identification and measurement of learning and the need to produce observable and measureable outcomes. Subsequently, the 'learning outcome approach' was refined by educational practitioners in USA, Australia, New Zealand, South Africa and the U.K and more recently by Denmark, Sweden, Ireland and other parts of Europe (Adam, 2006).

Outcome Based Education (OBE) is a recurring education reform model which is a popular term in the United States during the 1980s and 1990s (Wikipedia 2010). It is also called 'mastery education' or 'performance-based education'. It has also been

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adopted in significant ways in Australia, South Africa, Hong Kong and other countries other than USA. It is typically based on a student-centred learning philosophy that focuses on empirically measuring students' performance, which are called 'outcomes'. OBE Model rejects traditional learning which focuses on what the school provides to students. Instead, it favours making students demonstrate what 'They know and are able to do'. It greatly emphasizes setting of clear standards for observable and measureable outcomes.

It seems that the Minimum Levels of Learning (MLL) in India is not a new concept but the same concept as that of Outcome Based Education (OBE) system in other countries of the world. Minimum Levels of Learning may, perhaps, be defined in a variety of ways. For example, one may define MLL as expected learning outcomes in term of observable terminal behaviour. Other may also define it on the basis of a taxonomic analysis of learning objectives such as knowledge, comprehension, application, analysis, synthesis, evaluation and so on. One can also state the MLL in terms of learning competencies expected to be mastered by every child by the end of a particular class or stage of education.

The present study is an attempt to address quality aspects at primary stage of education in Mizoram by assessing the learning outcomes of Class IV Children in the subject of Environmental Studies (EVS) in relation to the MLL. What is the status of children in the study of EVS at elementary stage in terms of learning outcomes? What is the status of primary school children in terms of learning outcomes on the basis of location i.e. rural and urban? Are there any differences on the basis of type of management i.e. government and private schools? Are there any gender differences in learning outcomes? Moreover, what are the areas of weaknesses of children in EVS at the elementary stage? What are the areas of difficulty or hard spots in the subject? All these questions demand an intensive study and introspective analysis which can only be addressed properly through research. It is in this context that the present study was undertaken.

Objectives of the Study

1. To assess the overall learning outcomes of Class IV children in Mizoram in Environmental Studies in relation to MLL.
2. To compare the performance and levels of achievement of Class IV children in Environmental Studies in relation to MLL on the basis of management of primary schools i.e. government and private.
3. To compare the performance and levels of achievement of Class IV children in Environmental Studies in relation to MLL on the basis of locality i.e. rural and urban.
4. To compare the performance and levels of achievement of Class IV children in Environmental Studies in relation to MLL on the basis of gender i.e. boys and girls.

Methodology of the Study

The present study is an evaluative study as it evaluates and assesses class IV children of primary schools in Mizoram based on learning outcomes in terms of competencies and skills prescribed for Minimum Levels of Learning (MLL) for class III children in the country. In fact, the learning outcomes test was conducted on the children who had just completed Class III and newly enrolled in Class IV. Descriptive method of research has been adopted as the investigator had to describe the status of primary schools children in Mizoram with regard to achievement of MLL or learning outcomes in the study of EVS.

The population under consideration in this study comprised of all class IV children of primary schools in Mizoram who had recently passed class III from such schools. Decision was made to draw a sample of not less than 2% of the population from each district by following stratified purposive sampling technique. Accordingly, samples were purposively drawn from all the different types of schools on the basis of their management and location. Consequently, the data were collected from the sample size of 808 class IV students which was found quite satisfactory and reliable as per the formula given by Krejcie and Morgan (1970).

The Competency-based Achievement Test duly constructed by the investigator was used as the tool to collect the required data from the sample population. The Achievement Test materials consisted three parts: Question sheets, Answer sheets and Practice sheets. Practice-sheets were prepared for the purpose of practice and trial so that children might not face difficulties owing to unfamiliarity of the tests. The medium of the test was Mizo, which is the spoken language of most of the children in Mizoram. Children of non-speaking Mizo, if any, were left out in the test. Data collection was carried out and completed within three months of commencement of the academic session.

The data so collected on the basis of the performances of the students have been analyzed with the help of measures of variability such as mean and standard deviation and ‘t’ calculated value has been used to find out whether the differences between the performances of children are significant at 0.1 and 0.5 levels or not. Performances are also analyzed in terms of levels of achievement, that is, the ranges of percentage of marks obtained by the students, to know if the students have achieved mastery level of learning expected in MLL. In operational terms, MLL requires that 80 per cent or more children should be able to master at least 80 per cent of the prescribed learning levels or skills. The result of the analysis of data and its interpretation are as given below:

Analysis of Data and Interpretation

1. Performances:

1) Overall performance:

Table No 1
Overall performance of Class IV children in Environmental Studies.

	EVS
Cases	808
Mean	18.91
SD	6.26

The performance of class IV children in terms of mean scores and Standard Deviation (SD) in Environmental Studies is presented in Table No 1. The facts reflected by the above table is that the overall performance of class IV children in this particular subject is very low and far from satisfactory as the mean score is 18.91 which is equivalent to the average percentage of 47.27.

2) District-wise Performances:

Table No 2:
District-wise performance in Environmental Studies (EVS)

Subjects	Aizawl		Champhai		Kolasib		Mamit		Lawngtlai		Lunglei		Saiha		Serchhip		Overall Total	
	N =	222	N =	118	N =	98	N =	89	N =	80	N =	107	N =	39	N =	55	N =	808
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
EVS	19.45	6.17	19.07	6.42	***17.70***	5.74	18.85	6.70	18.87	6.40	18.33	6.52	19.01	5.77	**19.69**	6.00	18.91	6.26

The above Table No 2 shows the result of district-wise performance of children on the subject of Environmental Studies (EVS). In Environmental Studies, the highest mean score (19.69) is found among children of Serchhip District and the lowest mean score (17.70) in Kolasib District. It may be noted that Kolasib derives the lowest mean score in Environmental Studies. At the same time, the lowest Standard Deviation is also found in Kolasib District in this particular subject. This reflects that lesser disparity of learning achievement in this particular subject is observed in Kolasib District.

3) Competency-wiseperformances:

Table No 3:
Competency-wise performance in EVS.

	Civic Amenities	Geography	Reading Map	History of the Early Man	Population Education	Personal hygiene	Environment	Solar System	Air/water Pollution	Overall Total
N	808	808	808	808	808	808	808	808	808	808
Mean	2.61	0.32	1.14	1.60	1.05	2.11	2.57	1.46	1.92	18.91
Std. Deviation	1.42	0.47	0.85	1.06	0.78	1.27	1.27	1.09	1.20	6.26

Table No 3 depicts the performance of children in nine major areas into which the test items in Environmental Studies have been classified. The items pertaining to 'civic amenities' elicit the highest mean score of performance i.e. 2.61 whereas the lowest mean score of performance (i.e. 0.3) is found on the items pertaining to 'geography' which include questions/items relating to general physical feature of the State of Mizoram. The level of performance of children on the item 'map reading' which requires the children to locate their own State and District from given political maps of India and Mizoram State, is also found to be very low (at the mean score of 1.14)). The overall mean score in this particular subject is only 18.9.

4) Management-wise performances:

Table No 4:
Management-wise performances in EVS

Mangements	N	Mean	SD
Govt.	384	**19.62**	6.29
Private	424	18.26	6.17
Total	808	18.91	6.26
t'		**6.45**	
Df		806	

It is striking to note from Table No 4 that when comparison of performance of children is made between government schools and private schools, significant difference is established in EVS subjects. In Environmental Studies, government schools are significantly better than private schools wherein the 't' calculated values is more than the Table value of 't' both at .01 and .05 levels. This implies that the difference of the mean scores between government schools and private schools in this subject can be said as real difference, which is not by chance and hence significant.

5) Location-wise performance:

Table No 5:
Location-wise performance in EVS.

	Environmental Studies					
	Rural			Urban		
	N	Mean	SD	N	Mean	SD
	305	18.23	6.53	503	**19.32**	6.06
t' value	**-5.01**					
Df	806					

Table No 5 depicts that in the EVS subject, children belonging to urban schools significantly perform better than their counterpart in rural schools. It may be noted that the 't' calculated value of -5.01 in Environmental studies is greater than the table 't' values at .01 and .05 levels.

6) Gender-wise performances:

Table No 6
Gender-wise performance in EVS

	Enviornmental Studies		
	Boy	Girl	Total
N	383	425	808
Mean	18.93	18.89	18.91
Std. Deviation	6.54	6.00	6.26
t'	0.21		
Df	806		

Table No 6 depicts that in gender-wise comparison of the performances of sample Class IV children, no significant difference is established between boys and girls. In other words, the 't' calculated value of 0.21 in Environmental studies is less than the table 't' value at .05 and .01 levels and as such, the difference between mean scores of boys and girls in this particular subject is minimal and cannot be assumed as real difference. In other words, the difference between mean scores of boys and girls in Environmental Studies can be by chance and hence statistically insignificant.

2. Levels of Achievement:

1) Overall Levels of achievements:

Table No 7
Overall Level of Achievement in EVS.

	EVS	
	N	%
Mastery 80% and Above	2	0.25
60-79%	190	23.51
45-59%	290	35.89
30-44%	215	26.61
Below 30%	111	13.74
Total	808	100

The Table No 7 above presents the percentage levels of achievement of the children. The facts reflected by the above table are as given below:

(i) The mean score obtained out of a total mark of 40 is 18.91 which is equivalent to the average percentage of 47.27. Of the 808 students, only 0.25% persons attained mastery level. This means that not less than 99% have failed to achieve mastery level. Thus, it is empirically evident that the level of achievement of IV children in Environmental Studies is very low and far from satisfactory.

(ii) The largest number of children is found within the given range of 45%-59% of marks in Environmental Studies.

2) Competency-wise level of achievement:

Table No 8
Competency-wise level of achievement in Environmental Studies.

Selected MLL Competencies in Env. Studies (EVS).	Below 30%		Mastery (80%&above)	
	N	%	N	%
Civic amenities.	192	23.76	65	8.04
Geography.	547	67.70	261	32.30
Map reading.	280	34.65	79	9.78
History of early man	389	48.14	27	3.34
Population education.	223	27.60	264	32.67
Personal hygiene	256	31.68	117	14.48
Environment.	133	16.46	168	20.79
Air/water Pollution	291	36.01	79	9.78
Solar system	440	54.46	27	3.34

It is evident from Table No 8 that although the largest percentage of children achieving mastery level is found on the item of Geography, 67.70% of children have scored less than 30% of the total marks in this particular area. This reflects that half of the total sample children have failed to score more than 30% of the total marks in the area. Another area where we find half of the children scoring less than 30% of the total mark is on the area of Solar system. Apart from these two areas, the MLL competency areas like history of early man, civic amenities, map reading and air/ water pollution are the areas where there are less than 10% of the children who attain mastery level. In other words, not less than 90% of children fail to attain mastery level in these four areas. Besides Geography, Solar system is the area where more than 50% of children score less than 30% of total mark.

3) District-wise levels of achievement:

Table No 9
District-wise Level of achievement in Environmental Studies.

District	Below 30%		30-44%		45-59%		60-79%		Mastery 80% & above		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Aizawl	27	12.2	54	24.3	84	37.8	56	25.2	1	0.5	222	100
Champhai	17	14.41	31	26.27	41	34.75	28	23.73	1	0.85	118	100
Kolasib	16	16.33	30	30.61	36	36.73	16	16.33	0	0	98	100
Mamit	14	15.73	19	21.35	34	38.20	22	24.72	0	0	89	100
Lawngtlai	10	12.50	25	31.25	24	30.00	21	26.25	0	0	80	100
Lunglei	19	17.76	26	24.30	39	36.45	23	21.50	0	0	107	100
Saiha	5	12.82	12	30.77	12	30.77	10	25.64	0	0	39	100
Serchip	3	5.45	18	32.73	20	36.36	14	25.45	0	0	55	100
Total	**111**	**13.7**	**215**	**26.6**	**290**	**35.9**	**190**	**23.5**	**2**	**0.2**	**808**	**100**

A casual look at Table No 9 tells us that only 2 (two) children (0.2%) achieved mastery level in Environmental Studies and those two children are from Aizawl and Champhai districts. No one from the remaining 6 (six) districts achieves this level in this particular subject. As a whole, the largest number of Class IV children is found scoring in between the range of 45%-59% and 13.7% of children have scored below 30% of the total marks in this subject. Since only 0.2% achieves mastery level, the overall level of achievement in this particular subject is very low and unsatisfactory. By implication approximately one-tenth of the children do not even obtain 30% marks on the tests.

4) Management-wise level of achievement:

Table No 10
Management-wise Level of Achievement in Enivironmental Studies

Ranges	Type of School				Total	
	Government		Private			
	N	%	N	%	N	%
Mastery(80% and Above)	0	0	2	0.47	2	0.25
60%-79%	114	29.69	76	17.92	190	23.51
45%-59%	131	34.11	159	37.50	290	35.89
30%-44%	93	24.22	122	28.77	215	26.61
Below 30%	46	11.98	65	15.33	111	13.74
Total	384	100	424	100	808	100

The above table (Table No 10) presents the level of achievement in Environmental Studies of the two types of schools, i.e., government managed schools and private managed schools. The table reveals that no child from government schools attains mastery level whereas 0.47% of children from private schools attains so. The largest numbers of sample children both from government and private schools are found securing marks within the range of 45%-59%. Further, mention may also be made that 11.98% of sample children in government schools secure marks less than 30% of the total marks whereas 15.33% of children in private schools secure the same. Although 0.47% of children from private schools attain mastery level, there are 15.33% of children who secure marks less than 30% of the total marks in private schools which is larger than the number of children securing marks within the same range from government schools.

5) Location-wise levels of achievement:

Table No 11
Location-wise Level of Achievement in Environmental Studies.

Ranges	Locality				Total	
	Rural		Urban			
	N	%	N	%	N	%
Mastery(80% and Above)	0	0	2	0.40	2	0.25
60-79%	71	23.28	119	23.66	190	23.51
45-59%	90	29.51	200	39.76	290	35.89
30-44%	91	29.84	124	24.65	215	26.61
Below 30%	53	17.38	58	11.53	111	13.74
Total	305	100	503	100	808	100

As shown in Table No 11 given above, 0.40% of children from urban schools attain mastery level whereas no one from rural schools attains this level in Environmental Studies. There are 17.38% children in rural schools who secure less than 30% marks whereas the percentage of children who score the same level of marks is 11.53% in the case of urban schools. Of the five different ranges of level of achievement, 30%-44% is the range in which the highest percentage of children from rural schools falls whereas it is 45%-59% for children of urban schools. As a whole, children of urban schools perform a little bit better than children of rural schools.

6) Gender-wise level of achievement in EVS:

Table No 12
Gender-wise level of achievement in EVS.

Level of Achievement in EVS	Gender					
	Boy		Girl		Total	
	N	%	N	%	N	%
Mastery(80% and Above)	1	0.261	1	0.2	2	0.25
60-79%	102	26.63	88	21	190	23.5
45-59%	126	32.9	164	39	290	35.9
30-44%	99	25.85	116	27	215	26.6
Below 30%	55	14.36	56	13	111	13.7
Total	383	100	425	100	808	100

The gender-wise level of achievement in Environmental Studies given in Table No 12 reveals that boys are little better than girls. It appears from the given table that 0.26% of boys and 0.2% of girl attain mastery level in this subject whereas 14.36% of boys and 13% of girls secure marks less than 29% of the total marks. The highest concentration of boys and girls is also found within the given mark ranges between 45-59%. 26.63% of boys are found within the mark range of 60%-79% whereas 21% of girls are found within the same range.

Major Findings and Conclusion:

1. Overall performance and level of achievement:

1) In Environmental Studies 0.25% of children achieved mastery level of learning and not less than 99% of children had failed to attain mastery level of learning in EVS which is very low and far from satisfactory.

2. District-wise performance and level of achievement:

1) Children belonging to Serchhip District were found strongest in EVS followed by that of Aizawl District whereas children from Kolosib District were found weakest.
2) In EVS, children from four districts derived the mean score less than the overall mean score of 18.91 which is equivalent to the average percentage of 47.27.
3) In EVS, the largest group of children (35.90%) derived a scoring which fell within the mark range of 45%-59%.
4) As a whole, performance of children from Lawngtlai District was found lowest followed by Saiha District.

3. Competency-wise performance and level of achievement:

1) Amongst the 9 different areas of MLL competency identified in EVS, the level of achievement of children was lowest in the area of geography on the ground that more than half of them gave wrong responses to all the test sub-items which tested knowledge of the general physical features of Mizoram. The area of MLL competency pertaining to 'civic amenities' elicited the highest mean score of performance of children, and at the same time, the lowest percentage of 'zero correct responses' was observed. Map reading was also found to be one of the most difficult sub-items since nearly one-fifth of the children (20.54%) were unable to locate own state/district in a given political map of India/Mizoram.

4. School Management-wise Performance and Level of Achievement:

1) The performance of children from government primary schools were found significantly better than children of private primary schools in Environmental Studies.

2) Although the mean score of children from private primary school was less than that of the government primary schools in EVS, no one from government schools attained mastery level whereas 0.47% of children from private schools attained mastery level.

3) Of the 9 different areas of MLL competencies in EVS, children of government schools were found weakest against geography, population education, reading map and solar system whereas children of private primary schools were found weakest against geography, population education, solar system and reading map**.** In other words, of the 9 different areas of MLL competencies in EVS, children from both schools i.e government and private, were found weakest against geography, population education, reading map and solar system.

5. School Location-wise performance and level of achievement.

1) Children of primary schools located in urban areas were significantly better than children of primary schools located in rural areas in the subject of Environmental Studies. In other words, urban schools were significantly better than that of rural schools in the test.

2) In EVS, 0.40% of children of primary schools located in urban areas attained mastery level whereas no one from schools located in rural areas attained the same level. Amongst urban school children, the largest group of them (39.76%) secured marks which fell within the mark range of 45%-59% whereas the largest group of rural school children (29.84%) was placed within the mark range of 30%-44%.

3) Out of the 9 different areas of MLL competencies in EVS, higher percentage level of attainment of mastery in urban primary schools was observed in all the areas except in the areas like reading map, solar system and air/water pollution. The level of attainment of mastery was higher in rural schools than urban schools in the 3 areas like reading map, solar system and air/water pollution.

6. Gender-wise comparison of performance and level of achievements:

1) There is no significant difference between the performance (mean scores) of boys and girls of Class IV in primary schools in Mizoram in EVS.

2) In EVS, 0.26% of boys and 0.2% of girls only attained mastery level and 14.36% of boys and 13% of girls secured mark less than 30% of the total mark. The largest groups 32.9% boys and 39% girls scored within the mark range of 45%-59%. Out of the 9 different areas, the percentage level of attainment of mastery amongst boys was higher than girls in the 6 areas such as civic geography, early man, personal hygiene, environment, solar system and air/water pollution. Moreover, the percentage level of 'zero correct responses' of boys was also higher than girls in the 6 different areas of MLL competency like civic amenities, early man, population, personal hygiene, environment and solar system. This meant that there were more boys who committed zero correct responses to such question items.

Discussions and Suggestions:

On the basis of the major findings given in the preceding para, the following discussions and suggestions are given:

1. MLA project (1999) in 11 African countries reported that pupils in private schools outperformed those in public schools in all the subjects measured in ten out of eleven MLA African countries, Mauritius being the exception (V.Chinapah, et al, 1999). Another study carried out by SACMEQ in Southern Africa also revealed that pupil in the high socio-economic (SES) group consistently outperformed those in the low SES group (Rao, et al, 2001). Generally private schools received pupils from high SES group and government schools received pupils from low SES group. It would be very natural if private school children outperformed those children in government schools in all the subjects. However, in the present study, government school children outperformed those children in private schools in this particular subject (EVS). Therefore, it is suggested that mastery learning approach must be emphasised especially in those private schools and learning through rote-memorization be discarded completely. Moreover,

the government should consider compulsory training scheme for those teachers working in private schools.

2. As a whole, competency-based activity-centred or learning outcome approach should be emphasised and followed as a teaching and learning approach right from the elementary level. Learning outcomes and structures should be formulated to facilitate the sequential development of the concepts. In order to attain the specified competencies or mastery levels, pupils have to be active, not passive participants in learning. Rote memorization should be discarded completely at any cause as is also desired by NCF 2005 and RTE Act, 2010.

3. With the introduction of C.C.E as required under the recently published Right to Education Acts, MLL approach of learning should be encouraged in the State in order to raise the standard of achievement and necessary steps should also be taken up at appropriate level to implement the action plan for introduction of MLL. The SCERT in the State may be entrusted to follow up action plan which was already prepared by the MHRD, New Delhi way back in 1990.

4. Mastery based learning need to be emphasized with determination. The traditional concept of '30 per cent pass mark' prevalent at the primary stage is, indeed, an impediment in creating the condition for success and raising the standard of learning. At this stage, it is absolutely essential that the mastery level of learning is aimed at. One can be sure of substantial improvement in quality without sacrificing equity, only when achieving the basic skills of reading, writing, computation, etc., as given in the MLL statements.

5. Teacher education, teacher training and their working conditions require special considerations to attain an Education of Quality for All. Teachers are required to be trained and made them acquainted with mastery based learning approach. Hence, the syllabi of the DIET and B.Ed College should be re-examined and revised so as to cater adequately the required skills in mastery based learning method.

6. A relationship was found between the level of reading ability at age 7 and the level of achievement in examination at age 16. Reading predictor at age 7 proved to be an equally accurate predictor at age 16 (MacGilchrist, 1997). Thus, greater emphasis should be given to reading ability of children at primary stage and appropriate innovative schemes of an intervention should also be formulated and provided to help those pupils who are found weak in reading right from the primary stage. In other word, special attention must be given to the progress of pupils especially in reading ability at primary stage.

7. More attention should be given to curriculum planning and the provision of adequate and relevant materials for improving the teaching and learning processes. The course structure or objectives of curriculum should be reviewed so as to cater at least all the competencies or skills listed out in the MLL statement. Even if textbook may not adequately cover, Teacher should be able to take care of those competencies or skills through interaction and co-curricular activities inside and outside the classroom.

8. More efforts are needed in order to integrate and facilitate the teaching and learning of basic knowledge, skills, values, behaviours as well as self-learning and critical-thinking habits right from elementary stage. All these efforts must be directed and guided by systematic and continuous learning outcome assessment.

9. At least minimum required learning facilities must be made available in all schools for which government should take necessary appropriate steps for improvement.

10. Concrete measures and steps must be taken up so that percentage of teachers with professional degrees can be improved both in government and private primary schools. The State should introduce 'License for teaching' and only who hold such license should be allowed to work in private schools. Such license should be issued only to those who hold at least D.T.Ed degree from a recognised DIET for teaching in private primary schools.

11. The government should formulate desired or expected minimum learning facilities for all the primary schools irrespective of managements. Those schools failing to comply such minimum learning facilities should not be allowed to continue as a recognised school.

12. Textbook development and construction should be done properly under the initiative taken by the SCERT in the light of NCERT Guidance. The course structure and objectives must be made exactly alike between English Medium School and Mizo Medium School. Even the content of information of all the textbooks must be made exactly alike between the two types of schools. The printing and paper quality of textbook must also be made equally alike for the two types of school.

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"I never met a man so stupid I could not learn something from him."

~ Galileo Galilei

"Experience is a hard teacher because she gives the test first, the lesson afterwards."

~ Vernor Sanders Law

Analysis of BA Examination Question Papers in Education Using Bloom's Taxonomy of Educational Objectives

Lalchhuanmawii *
R.P.Vadhera **

Abstract

Planning, teaching and assessment stages are used to achieve educational aims, where assessment is the crucial stage in determining students' conceptual development. Written examination is a conventional yet universal tool to evaluate the student's performance in a subject area. Teachers tend to ask questions in the 'knowledge' category 80% to 90% of the time. If this trend continues, the quality of education will go down. A good and reasonable examination paper must consist of various difficulty levels to accommodate the different capabilities of students. If we can gradually adjust our way of teaching and questioning towards higher order cognitive skills, it will surely improve the quality of education. Using Bloom's Taxonomy to help design examinations and analyze the results could greatly improve the quality of assessment in education. Hence the need arises for conducting analysis of question papers from the perspective of the cognitive levels of Bloom's Taxonomy.

Key words: *Examination question papers, Bloom's taxonomy, Educational objectives*

Introduction:

One of the most important aims of education is to provide the best quality education so that students can develop to their maximum potential and make substantial contributions to the knowledge economy. The primary concern of evaluation is to bring about improvement in the teaching-learning process so that the learner develops his potential to the optimum level. In order to achieve this goal, regular and qualitative evaluation of various aspects of the educational system is needed. The four pillars of quality education, namely, 1) curriculum development & design, 2) classroom teaching-learning/curriculum transaction, 3) students' level of learning and learning styles, and

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4) evaluation/assessment of learning outcomes are closely interlinked. One aspect affects or determines the success of all the other aspects. If the curriculum package is of high quality, then classroom teaching-learning, students' level of learning and evaluation methods will also be of high quality and vice versa. Therefore, these four pillars of quality education need to be given due attention and focus by educational administrators, curriculum planners, teachers and other concerned personnel. Then only the aims and objectives of education will be successfully achieved and the quality of education will be greatly improved.

Bloom's Taxonomy of Educational Objectives:

Bloom's Taxonomy of Educational Objectives is a classification of learning objectives within education proposed in 1956 by a committee of educators headed by Benjamin Bloom. The word **'taxonomy'** simply means **'classification of things arranged in a hierarchical order'**. Bloom's Taxonomy is a hierarchy of skills that reflects the growing complexity and ability to use higher order thinking skills. It divides educational objectives into three domains: **Cognitive *(knowing/head)*, Affective (*feeling/heart)*** and **Psychomotor (*doing/hands*).** Within the domains, learning at the higher levels is dependent on having attained prerequisite knowledge and skills at lower levels. The present study is limited to the Cognitive domain only.

The Cognitive Domain of Bloom's Taxonomy is a multi-tiered model of classifying thinking according to six cognitive levels of complexity, which are listed in order starting from the simplest behavior to the most complex. These levels are **knowledge, comprehension, application, analysis, synthesis and evaluation.** The categories can be thought of as degrees of difficulties, that is, the first ones must normally be mastered before the next ones can take place. A detailed look at the Cognitive Domain is given as follows.

1. Knowledge: Remember or Recall data or information.

Eg: What are the health benefits of eating apples?

Key Verbs: define, know, label, list, match, name, recall, recognize, reproduce, select, state, write, tell, show, collect, tabulate, quote, who, when, where, locate, find, what, why, omit, which, choose, how, spell, visualize, draw, read, record, view, point to, memorize, recite, repeat.

2. Comprehension: Grasp or Understand the meaning and interpretation of instructions and problems. State a problem in one's own words.

Eg: Elaborate on the health benefits of eating apples vs. oranges.

Key Verbs: comprehend, explain, give examples, paraphrase, rewrite, summarize, translate, what is the main idea of, describe, illustrate, associate, differentiate, distinguish, discuss, outline, restate, relate, rephrase, express, transform, confirm, suggest, make sense out of, state in own words, understand, report, enumerate, elaborate.

3. Application: Use a concept in a new situation or Applies what was learned in the classroom into novel situations to solve problems.

Eg: Identify which kinds of apples are best for baking a pie, and why?

Key Verbs: apply, change, compute, demonstrate, manipulate, operate, predict, prepare, produce, solve, use, calculate, complete, classify, experiment, build, interview, make use of, organize, plan, utilize, model, interpret, administer, chart, contribute, control, extend, construct, implement, include, inform, instruct, participate, preserve, project, provide, transfer, give original examples, sketch, paint, dramatize, make, extrapolate, identify.

4. Analysis: Separates material or concepts into component parts so that its organizational structure may be understood. Distinguishes between facts and inferences.

Eg: List four dishes made with apples and examine which ones have the highest health benefits. Provide references to support your statements.

Key Verbs: analyze, break down, diagrammatize, deconstruct, discriminate, infer, separate, categorize, question, order, connect, arrange, divide, examine, investigate, discover, dissect, inspect, simplify, survey, test for, distinction, theme, relationship, function, motive, inference, assumption, organize, correlate, focus, limit, subdivide, research, take apart, sort, debate, affect.

5. Synthesis: Builds a structure or pattern from diverse elements and Put parts together to form a whole, with emphasis on creating a new meaning or structure.

Eg: Convert an “unhealthy” recipe for apple pie to a “healthy” recipe by replacing your choice of ingredients. Explain the health benefits of using the ingredients you chose vs. the original ones.

Key Verbs: combine, compile, compose, create, convert, devise, design, generate, modify, rearrange, reconstruct, reorganize, revise, develop, propose, hypothesize, invent, integrate, substitute, what if?, formulate, prepare, generalize, imagine, make up, originate, solution, suppose, original, improve, adapt, minimize, maximize, delete, theorize, support, schematize, anticipate, collaborate, communicate, facilitate, incorporate, initiate, intervene, negotiate, progress, reinforce, restructure, validate, derive, add to create.

6. Evaluation: Make judgments about the value of ideas or materials.

Eg: Do you consider that serving apple pie for an after school snack for children is healthy? Justify your answer.

Key Verbs: appraise, compare, contrast, criticize, critique, defend, evaluate, justify, judge, rate, assess, recommend, rank, grade, test, measure, convince, verify, argue, prioritise, determine, dispute, measure, rule on, agree, opinion, criteria, prove, disprove, perceive, value, estimate, influence, deduct, consider, reframe, score, deduce, draw conclusions, apprise, weigh, option, preferable.

Rationale of the Study:

Bloom's Taxonomy is a valuable tool in the construction and assessment of question papers. Bloom created this taxonomy for categorizing level of abstraction of questions that commonly occur in educational settings. Evaluation is the crucial stage in determining whether students' conceptual development has reached Higher Order Cognitive Skills or not. Improving students' conceptual understanding depends on the question types asked in examinations by the teachers. A good assessment system will determine what and how students learn as well as what and how we teach. A good and reasonable examination paper must consist of various difficulty levels to accommodate the different capabilities of students. Whether or not the written examination is able to assess the student's ability very much depends on the questions presented in the examination paper.

In order to improve the quality of teaching, it is widely believed that one must set good/proper questions where appropriate attention is given to maintaining the correct balance between lower and higher order cognitive questions. The ability to reason effectively and to solve problems creatively are skills which must be acquired through appropriate instruction and training. Teachers can provide this type of instruction and training by using a blend of Higher and Lower order cognitive questions given in Bloom's Taxonomy in their assessments. The three lowest levels of abstraction in thinking are knowledge, comprehension and application. These are all exhibited at a very early age and continue throughout our lives. The higher order thinking skills are analysis, synthesis and evaluation. These emerge in late childhood and early adolescence and truly mark the beginning of serious consideration and contemplation. These levels have often been depicted as a stairway, leading many teachers to encourage their students to climb to a higher level of thought.

Bloom's Taxonomy provides a clear, concise representation of the alignment between standards and educational goals, objectives, products and activities. Bloom's Taxonomy has been widely used by curriculum planners, administrators, researchers, and teachers at all levels of education worldwide. It is easily understood and is

considered a complete recipe which relates to all the four pillars of quality education and can help us in addressing the quality in any type and level of education. Thus, the purpose of this paper is to analyse BA Education question papers under Mizoram University using Bloom's Taxonomy of Educational Objectives and to ascertain whether they meet the quality standards set by it.

Objectives of the Study:

The present study has the following objectives:

1. To analyze selected question papers in Education at the college level in terms of cognitive domain of Bloom's Taxonomy of Educational Objectives.
2. To study the progression of question paper setting from the lower to the higher level cognitive objectives in BA Education question papers for five consecutive years, i.e. 2011, 2012, 2013, 2014 and 2015.
3. To recommend suggestions for improvement in question paper setting.

Tools Used:

Bloom's Taxonomy Coding Scheme representing the six levels of learning objectives viz.: 1) knowledge 2) comprehension 3) application 4) analysis 5) synthesis and 6) evaluation, has been developed for classification of questions. This Coding Scheme was compiled from the works of 17 researchers who were working on different aspects of Bloom's Taxonomy.

Method of Analysis:

Document analysis method was used to analyze the BA Examination papers in Education of Mizoram University for five consecutive years (ie.2011-2015). The questions were analyzed using the aforementioned Coding Scheme and placed in their proper categories.

Findings and Discussions:

The data obtained were analyzed with the help of descriptive statistics (percentages) and the findings are presented in the following table.

Objective 1: *To analyze selected question papers of BA Education in terms of Cognitive Domain of Bloom's Taxonomy of Educational Objectives.*

In order to achieve this objective, BA Education question papers (excluding Statistics) of five consecutive years (2011-2015) were analysed using Bloom's Taxonomy Coding Scheme (also known as Bloom's Taxonomy Key Verbs). The findings in this regard are presented in the following table-1.

Table I : Consolidated View of Analysis of BA Edn Question Papers 2011-2015

Year	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
2011	39.47%	57.89%	0.88%	-	-	1.75%
2012	34.55%	61.82%	1.82%	1.82%	-	-
2013	36.79%	61.32%	1.89%	-	-	-
2014	46.79%	50.46%	0.64%	0.64%	0.64%	0.64%
2015	34.38%	59.38%	1.25%	3.75%	-	1.25%

Interpretation of Results/Discussion of Findings:

The above table shows the result of analysis of BA Education question papers from 2011 to 2015. It clearly indicates that most of the questions concentrated on Comprehension domain, followed closely by Knowledge domain. Some questions were asked from Application domain, but very few from the three domains under Higher Order Cognitive Skills, viz. Analysis, Synthesis and Evaluation. Hence, we can conclude that majority of the questions were from the Lower Order Cognitive Skills. Questions asked from the Higher Order Cognitive Skills were negligible.

The low quality of questions may be directly linked to poor curriculam package, low learning level of students, defective teaching-learning strategies and evaluation techniques. Teachers can improve the quality of their instruction and training by using a blend of Higher and Lower order cognitive questions. Using Bloom's Taxonomy to help design examination questions and analyze the results could greatly improve the quality of assessment in education.

Objective 2: *To study the progression of question paper setting from the lower to the higher level cognitive objectives.*

The above Table-1 clearly shows the trend in question paper setting in BA Education for the past five consecutive years, i.e. 2011 – 2015. It indicates that during the past five years, majority of the questions concentrated on Comprehension, Knowledge and Application domain respectively. Very few questions were asked from Analysis, Synthesis and Evaluation. Especially from 2011 to 2013, questions asked from the Higher Order Cognitive Skills were negligible (1.75% in 2011, 1.82% in 2012, none in 2013). But we see a slight improvement in 2014 (1.92%) and 2015 (5%), although the percentage is still quite low. This slight improvement may be attributed to the fact that Semester system was introduced from 2010 onwards with new curriculum, new teaching methods, new evaluation system, etc. The first batch of the semester system secured their bachelor degree in 2013.

Hence we can conclude that there has been a slight improvement in question paper setting in the past few years with the introduction of semester system. Efforts have been made to include more questions from Higher Order Cognitive Skills. But there is still a long way to go. With the introduction of CBCS in 2016, hopefully we will see more improvement in question paper setting in the near future.

Suggestions for Improvement

1. The study found that in all the question papers analysed, majority of the questions belonged to the Lower Order Cognitive Skills, predominantly comprehension, closely followed by knowledge. Only a negligible number of questions were asked from the Higher Order Cognitive Domains. This trend clearly indicates the low quality of our educational system. If this trend continues, then the quality of education will deteriorate further. Hence, remedial steps have to be taken in the areas of curriculum design, classroom teaching-learning, evaluation procedures, etc with immediate effect to redress this problem and improve the present system.
2. Teachers need to be made aware of Bloom's Taxonomy and its relevance in the field of education, particularly in question paper setting. It should be made an integral part of the curriculum in teacher training programmes.
3. Teachers need to be informed of the importance of maintaining the correct balance between lower and higher order cognitive questions. Teachers cannot set an examination paper comprising numerous Lower Order Cognitive Questions. Effective questions that include problem solving and complex thinking skills should be adequately included to stimulate students' mental activities.
4. Teacher Training Programmes/Workshops on Question Paper Setting should be periodically conducted by the concerned authorities.
5. Teachers selected for setting of question papers should be given short training (one day) on Bloom's Taxonomy. If this is not possible, they should be provided with information regarding Bloom's Taxonomy Coding Scheme and be instructed to set questions accordingly.

Conclusion

In order to produce useful graduates who can contribute to the knowledge-based global economy, we must provide quality higher education. This means producing graduates who are intuitive and creative, and who are able to use their cognitive skills when faced with problem solving tasks. Students should posses a number of cognitive skills such as an understanding of methodologies or ability in critical analysis. An essential need is the development of reliable tools and methods that reinforce and

assess new curriculum designs, new teaching-learning strategies, new learning styles, new evaluation techniques and so on. Bloom's Taxonomy relates to all these different aspects of education and can be effectively applied to improve the quality of education.

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"If you don't build your dream, someone else will hire you to help them build theirs."

Dhirubhai Ambani

Music Aptitude among College Students in Aizawl City, Mizoram

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Abstract

The objective of the present study is to find out the level of music aptitude of college students in Aizawl city, and to compare them with reference to their gender and stream of study. Results indicated that majority of college students possessed average music aptitude. Finding also revealed that female students had higher musical aptitude than the male students; that arts students possessed higher musical aptitude than the science and theology students; that commerce students were better in their music aptitude as compared to the science and theology students; and that science students were superior to theology students in musical aptitude. Suggestions for development of talents of students with musical ability have also been put forward.

Key words: *Music aptitude, College students, Mizoram*

Aptitude may be described as a special ability or spcific capacity different from the general intellectual ability which facilitates an individual to acquire the required degree of proficiency or achievement in a specific field.

If one has an aptitude for music, it means that one's present condition or ability reveals that if one is to learn music one would be successful. The knowledge of an individual's aptitude thus helps one to predict his future success in a particular field of activity, with appropriate training or experience.

Music Aptitude

Music aptitude means potential for music achievement. Music achievement is the level of skill that individuals acquire based on their aptitude and music experiences.

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One's music aptitude is not necessarily represented by one's music achievement. It is possible that low music achievers may have high music aptitude. Gordon, (1987) suggested that favorable environmental influences are necessary for children to maintain the level of music aptitude with which they are born. Music aptitude is distributed normally throughout the population at birth (Gordon, 1990). Although music aptitude is innate, it is not hereditary (Taggart, 1989). That is, the level of music aptitude that individuals are born with cannot be predicted on the basis of the level of music aptitude of their parents.

Music and the Mizo People:

The Mizo (people of Mizoram) are very fond of singing. They would sing not only during happy occasions like marriage celebrations but even in the event of death. Mizo traditional tunes are very soft and gentle, and they can be sung the whole night without the slightest fatigue. The guitar is a popular instrument among the youth and even without musical instruments, the Mizo youths enjoy singing. They would enthusiastically sing together in social gatherings. The early Mizo were close to nature and music remains an essential part of their cultural life. Whilst gospel music remains an integral part of Mizo culture, western influence is evident from the contemporary music scene as young people experiment with rock, metal, rap, pop and hip-hop.

Rationale of the Study:

A thorough examination of various studies reveals the fact that research in Musical Aptitude has been largely unexplored. Especially in Mizoram, such a kind of study has not been taken up so far. The Mizo in general are very much interested in music and singing; therefore, it comes as a surprise that research in aptitude for music has not really been attempted. Considering the fact that studies in different other areas have been conducted, studies of Musical aptitude among the Mizo students has never been conducted in the state of Mizoram.

Concerning the limited studies done in this area, and considering the benefit the state of Mizoram is going to harvest from the research in this area, it would be pertinent to find out the musical aptitude of Mizo college students and compare them with respect to their gender and stream of study.

Objectives of the Study:

1. To find the level of music aptitude of college students in Aizawl.
2. To compare the differences in the level of music aptitude of college students in Aizawl with reference to their gender.

3. To compare the differences in the level of music aptitude of college students in Aizawl with reference to their stream of study
4. To find out the existing provisions for the education of students having musical talents and to suggest measures for the development of their talents.

Methodology:

The present study belongs to the category of 'Descriptive Research Survey' with features of inter-group comparison.

Population and Sample:

The population of the present study consisted of all Mizo students studying in the colleges within Aizawl city. The sample consisted of 400 students with 229 males and 171 females. 100 students each from the streams of Arts, Science, Commerce and Theology were selected

Tools Used:

i) Musical Aptitude Profile. (Edwin E. Gordon, 1995)

Analysis and Interpretation of Data:

Analysis and interpretation was done in accordance with the objectives as follows:

Objective 1: To find the level of music aptitude of college students in Aizawl.

In order to find out the level of music aptitude of college students in Aizawl, the scores from music aptitude profile test was tabulated and norms established by the investigators was used for interpretation of data. The finding is presented in the following table - 1

Table - 1
Classification of college students with respect to their music aptitude

Classification	No of students	Percentage
Low music aptitude	95	23.75%
Average music aptitude	209	***52.25%***
High music aptitude	96	24.00%

The above table - 1 shows that majority of college students were found to possess average music aptitude (52.25%) The number of students possessing low and high music aptitude was 23.75% and 24.00% respectively

Discussion on the finding: All persons have the potential to achieve in music. Relatively few have high aptitude, a similar number have low aptitude, and the majority of persons fall somewhere in the middle of the "bell curve" with average aptitude. The reason why majority of college students in Aizawl have average musical aptitude could be accounted to this factor.

Objective - 2: To compare the differences in the level of music aptitude of college students in Aizawl with reference to their gender.

The levels of music aptitude of college students were compared on the basis of their gender. The mean differences between male and female students were tested by applying 't' test and the details are presented in the following table - 2

Table - 2
Comparison of music aptitude of college students with reference to their gender

Groups	Number	Mean	SD	MD	SEM	t-value	Significant level
Male students	229	159.47	25.26	8.43	2.42	3.48	.01**
Female students	171	167.9	22.95				

**Significant at .01 level

Table 4 shows that there was a significant difference in the music aptitude of college students with reference to their gender. When means of the two groups were compared, it was found that the mean of the female students were higher than that of the male students. This indicates that female college students possessed a significantly higher music aptitude than the male students.

Discussion on the finding: Studies have found that generally, girls speak earlier, have larger vocabularies, and sing in tune earlier than boys. Because of this, perhaps, Mizo parents or the community may have been motivated to train or socialize the female students, which may influence their music learning and their music aptitude. Besides, studies have shown women to be more adept than men at encoding facial differences and determining changing vocal intonations. Intonation means "producing musical tones," either with your voice or a musical instrument. Perhaps female college students of Aizawl are more skillful in determining musical tones than their male counterparts. Therefore, the findings that female college students having significantly higher musical aptitude than male students could very well be attributed to their genetics as well as their environmental surroundings.

Objective - 3: To compare the differences in the level of music aptitude of college students in Aizawl with reference to their stream of study.

The level of music aptitude of college students were compared on the basis of their stream of study. The mean differences between students of different streams were tested by applying 't' test and the details are presented in the following table - 3

Table - 3
Comparison of music aptitude of college students with reference to their stream of study

Sl. No.	Groups	N	M	SD	MD	SE (MD)	t-value	Sig. level
1	Science students	100	164.07	20.22	6.4	2.86	2.24	.05*
	Arts students	100	170.47	20.21				
2	Science students	100	164.07	20.22	7.86	3.24	2.42	.05*
	Commerce students	100	171.93	25.37				
3	Science students	100	164.07	20.22	18.24	3.09	5.9	.01**
	Theology students	100	145.83	23.41				
4	Arts students	100	170.47	20.21	1.46	3.24	0.45	NS
	Commerce students	100	171.93	25.37				
5	Arts students	100	170.47	20.21	24.64	3.09	7.97	.01**
	Theology students	100	145.83	23.41				
6	Commerce students	100	171.93	25.37	26.1	3.45	7.56	.01**
	Theology students	100	145.83	23.41				

* Significant at .05 level. **Significant at .01 level

From table - 3 one can see that significant difference was observed in the level of music aptitude between the *'science and arts'*, *'science and commerce'*, *'science and theology'*, *arts and theology'*, and *'commerce and theology'* college students. Whereas no significant difference was found in the level of music aptitude between *'arts and commerce'*, college students in Aizawl.

Looking at their mean, the above table reveals that *(i) Arts students possessed significantly higher music aptitude than the science students (ii) Commerce students were better in music aptitude than the science students (iii) Science students had better music aptitude than the theology students (iv) Arts students were superior than the*

theology students in their music aptitude and *(v) Commerce students had higher music aptitude than the theology students.*

Discussion on the Findings:

(i) "Arts students possessed significantly higher music aptitude than the science students": Arts stream involves the study of subjects like languages, political science, history, sociology, philosophy, psychology, etc. With a background in arts, one can pursue career options such as teaching, social work, law, politics, radio artist, acting, singing, music and many more. This means that music is included in the broad categories of the arts stream. Besides, science is an intensive course and requires hard work, persistence and commitment. It has been realized that students taking the science stream are so busy and engrossed with their studies that they hardly have time to nurture their musical ability, therefore, it is not surprising to discover that the arts college students possessed a significantly superior musical aptitude than the science college students of Aizawl city.

(ii) "Commerce students are better in music aptitude than the science students": Music recording industry is basically business oriented. Consequently it is much associated with commerce subject. The music recording industry offers important new business opportunities for those taking up the commerce subject. Business in recorded discs and tapes has increased over the past years. The basic resource, musical talent, is abundantly available among the Mizo youth. Perhaps there are more students with musical abilities who are also interested in gaining knowledge of the business sector amongst the college students because the present research found that commerce students possessed a significantly higher musical aptitude than the science students. Thus, this may be the plausible explanation as to why commerce students excel the science students in musical aptitude

***(iii) "Science students have better music aptitude than the theology students"*:** Music and science are very much related. Both use mathematical principles and logic, mixed with creative thinking and inspiration to arrive at conclusions that are both enlightening and encouraging. Music composition is basically a mathematical exercise. From a basic source of sounds, rhythms and tempos, countless types of musical expressions and emotions can be produced. The interaction of sounds, tempo, and pitch creates music, just like the interaction of known facts and knowledge together with imagination, speculation and inspiration produces new scientific discoveries. Both Science and Music use "formulas" and "theories" to solve problems, and to explore the intangible mysteries of life. A number of scientific theories exists that try to explain music. This undoubtedly indicates that music is as complex and varied as any scientific

principle or theory. Religion on the other hand provides personal, spiritual, and emotional relief, although music provides important opportunities for spiritual development, it may not be as interrelated compared to science. Therefore, since music and science are closely related, this could be the reason why the present research found that science students significantly outshine theology students in their musical aptitude**.**

(iv) "Arts students are superior than the theology students in their music aptitude": Music is an art form whose channel is sound and the common essentials are pitch, rhythm, dynamics, and the sonic qualities of timbre and texture. Art is something that is produced completely from the mind with or without some kind of inspiration and created on different kinds of mediums. While paintings and sculptures are considered art, music also is considered art because crafting notes to create a song is just as difficult as mixing paints to make a picture. The notes must be pleasing to the ear and the lyrics must be able to convey a message or a feeling that people can relate to. Students taking arts are expected to be better in music than students opting for theology because as cited above, music is also one form of art. Besides, secular music was frowned upon by organized religion, as being a threat. Christian music (*Mizo students are essentially christians*) scene never has had the competition or drive of the secular music scene, causing it to have a much lower bar. This may be the reason why the present research found that arts students excel theology students in musical aptitude.

(v) "Commerce students have higher music aptitude than the theology students": Music has always been the language of expressing the Christian faith. But, most of the popular music that we hear these days is evidently not religious. Songs nowadays are able to freely address diverse topics such as drug, sex, violence, love etc. Music has changed from expressing religious ideas and concepts to expressing the various secular ideas. Jazz seem to be the first genre of music to drift away from the traditional relationship between music and religion. It caused a major modification in the messages of music that were presented to society. This change in the traditional perception of music led to the creation of the blues, rap, rock 'n roll, and other popular genres of music we enjoy today, that do not essentially present religious themes. Meanwhile familiar themes of Christian music include praise, worship, celebration, penitence and lament. However, one should also be aware that Christian music is also shifting from the traditional music to contemporary Christian music which even includes Christian rap of the twenty first century. In this way, Christians are trying to preserve the message of the church while also meeting the needs of an ever changing world. However, it is perhaps not easy for a religious organization to alter its music genre at par with the changing world therefore, this may be the reason why theology students have lower music aptitude as compared to the commerce students.

Objective - 4: To find out the existing provisions for the education of students having musical talents and to suggest measures for the development of their talents.

Existing provisions in Aizawl city for the education of students having musical talents:

No special instruction is provided by the government either as a curricula or extra curricula activities in government schools for developing musical talents. However, some private schools gave music instruction to their students generally because of parental request, and also as a means of attracting students for admission to their schools.

There is one *'Institute of Music and Fine Arts'* (IMFA) at Chanmari, Aizawl under the department of Art and culture, Government of Mizoram which was opened in 1979. IMFA offered a three months full time course in music for mostly high school students and above. Students were selected through interview and the selected students were provided a stipend of Rs.500 per month since 2009. The IMFA syllabus includes Music awareness, Staff notation & guitar practical, Staff notation & guitar fingering, Sound system/mixing & Cipher notation and Vocal exercise

Further, a number of musical institutions have been opened by private bodies so that students can learn the basics of music during their spare time. The following are the list of private institutions offering music lessons:

Emily Singing Institute is an institution at Chanmari, Aizawl which provides music lesson in Vocals only. It was established in the year 1991. Students who wish to learn vocal training gets admitted to this institution. The time schedule is one hour per student and the school opens from 10 AM to 6 PM daily.

Synod school of music at Mission veng, Aizawl was established in the year 1992. They offer Elementary music course of three months where tonic solfa and staff notation are taught. Other courses include keyboard which follows the Trinity guildhall course, and Violin class where the school develops their own school syllabus. Classes are open in the morning for children 9 – 13 years, in the evening for 14 – 18 years and during the day time for 19 years and above.

Mystic is a music institution at Khatla, Aizawl which was opened in the year 2001. Music theory as well as playing of musical instruments such as keyboards, guitars, drums are being taught to students seeking admission to this institutions. Besides developing their own syllabus, the institution followed the syllabus specified by Trinity college of Music, London and Rock school, United Kingdom. The class schedule is one hour daily except for drums which is one hour thrice a week. Students can appear

for their certificate exams after they complete their course and there is no time bar to finish the course. As long as tuition fees are given they can continue to learn until they can get their certificate.

Crescendo, the school of music, Chanmari Aizawl was established in the year 2005. Crescendo provides music lesson in music theory, keyboard and guitars. Their class schedule is one hour daily for each student. They also followed the syllabus specified by Trinity college of Music, London for their course. Again there is no time bar to complete their course and students sit for their certificate examinations when they complete their course.

William Booth School of Music from Tuikual, Aizawl is owned by the Salvation Army and was established in the year 2006. They impart music lesson in theory, brass, guitar and keyboard. Their time schedule is one hour per each student, but the school is open only during morning (6 -8 AM) and evening (3 – 6 PM) The course followed by this institution is Royal School of Music, London

Sonata School of Music at Mission veng, Aizawl which was opened in 2007 offers music lesson in keyboard, guitars and violin. The class schedule is one hour daily and they also followed the syllabus specified by Trinity college of Music, London and Rock school, UK. Students can appear for their certificate exams after completing their course which also does not have any time bar.

Grandton school of music located at Zarkawt, Aizawl was established in the year 2010. This institution provides music lesson in guitar, drums and keyboard. The school is open from 9 A.M. to 6 P.M. and the time schedule for each student is one hour. The syllabus followed by this school is Trinity college of music, London. Students appear for their certificate exams when they finished their course, but there is no time bar in finishing their course.

Music Inn (*Sarabande school of music)* which is situated at Chaltlang Dawrkawn, Aizawl was started in the year 2010. This institution provide music lesson in keyboard, guitars and piano apart from theory lesson (staff notation and tonic solfa) and church music. The class schedule is one hour daily except drums which is one hour thrice a week. The course followed by this institution is Trinity college of Music, London. Here too, the course does not have any time bar and students sit for their certificate exams after they complete their course.

Vortex was initiated in the year 2013 at Sikulpuikawn, Aizawl. The institution offered music lesson on keyboard, guitars, drums, and bass guitars. The class schedule is 45 minutes twice a week and they followed the syllabus recognized by Rock school, UK besides developing their own school syllabus. Like other private institutions,

students will appear for their certificate exams after they complete their course, and there is no time bar in completing their course.

Home free school of music situated at Vaivakawn, Aizawl was established in 2013. They provide music lesson in keyboard and guitar. The time schedule for each student is one hour and they followed the course specified by Trinity Guildhall.

Drop Doubt School of music situated at Mission veng, Aizawl was established in the year 2014. They provide music lessons in theory, guitar and drums. They followed the course specified by Rock school UK and Trinity College of music. The class schedule is thrice a week for each department

Suggested measures for the development of the talents of students with musical ability.

Till date, no significant special educational provisions for the musically talented students have really been undertaken by the state of Mizoram. Provisions for learning music provided by the government and private institutions are somewhat pathetic.

One of the first steps in order to develop the talents of students with musical ability is to identify the musically talented students. This identification can be done by the teachers with the help of psychological tests like aptitude test, or just by observing their interest and personality.

The musically talented students may be encouraged to pursue their interest and the schools and colleges may arrange a platform to demonstrate their ability while providing opportunity to develop their talents in the form of music class in the institutions. These talented students will also enjoy what they are learning.

Essentially, the proper development of the musically talented students depends to a large extent upon the intelligence, wisdom and the sense of responsibility of the teacher. The teacher should try to make arrangement for developing special qualities in his more talented students.

It is suggested that music class or music subject should be introduced in the school and college curriculum. One should be aware that music class had always been included in the elementary school curriculum of Mizoram once upon a time, but it had been dropped from the curriculum more than twenty years back because the Mizoram Board of School Education considers that elementary curriculum is overloaded with too many subjects. Therefore, it is suggested that music be re-introduced in the school curriculum and also to include music as one of the subject at the college level.

The Government of Mizoram could also open up music school or Music College, somewhat like Delhi School of Music and can have a tie up with European universities

like Trinity College of Music, London; Royal Academy of Music, England; Royal Academy of Music, England, etc. Mizo's being a great lover of Western Music, this school/college may offer challenging courses in Western Classical Music as well as Indian music.

Mizoram University already had one School of Fine Arts, Planning & Architecture. It is suggested that under this School of Fine Arts, Planning & Architecture, the university be requested to offer post-graduate degree in music and a Doctor of Philosophy in Music. All the private music schools will then seek recognition from the Government and all these private music schools and institutions along with Government managed music college/schools will be affiliated to this University.

If such type of programmes could be organized and music schools/colleges opened in Mizoram as well as in other parts of the country, talents of our youths could be nurtured and developed and brought to the right direction, instead of letting it go down the drain; and the society in general will be greatly benefited.

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Perception of High School Teachers on English Textbooks Prescribed for Class X by Mizoram Board of School Education

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Abstract

Textbooks play important roles in the classroom settings of schools as they pave the way, both for teachers and students in the teaching-learning process. Thus, it is of great significance that a textbook needs to be of a good quality and must be revised from time to time. The study aims at finding out the perception of High School teachers on English textbooks prescribed for Class X by Mizoram Board of School Education in terms of (i) their physical aspects, (ii) academic aspects and (iii) objectives of teaching English at Secondary level. It was found that majority of the teachers: (i) perceived textbook cover designs as appealing for Class X students, (ii) found that the lessons were interesting enough for the students and (iii) opined that the textbooks did not help in developing the speaking skills of the students.

Key words: *Perception, High school teachers, English textbooks, Mizoram Board of School Education.*

Introduction

Textbooks play a very significant role in the teaching and learning especially in developing countries where teachers and students can utilize them according to their needs. Textbooks influence both the teachers and students, as they provide pattern to the teachers so that the teachers could teach in a better way and give guidelines to students for better learning.

To have a sound and effective programme of language teaching in schools, it is of great necessity that a good textbook is introduced to the teachers as well as the students. Language teaching and learning does not only aim at teaching stories and

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poems in the textbook. It means learning the concepts, understanding and utilising them as well. Language education in the secondary level aims at enabling students to comprehend English when spoken, to enable students to speak English correctly, to enable students to appreciate literary beauty, to enable them to express themselves logically using the correct grammatical patterns and so on. Thus, teaching of English language requires a good textbook to achieve its various objectives of teaching the language.

Evaluation of textbooks is of utmost importance to assure the contribution of the textbooks in the teaching learning process. Although some studies have been conducted on evaluation or analysis of textbooks in other parts of the world as well as in the country, no serious study in the area has been found in Mizoram. Moreover, the present textbooks are newly introduced and have been put to use only from April, 2016. It is therefore essential to evaluate these newly introduced textbooks to find out their suitability, and abilities to cater to the needs of the students. It is also a necessity to evaluate the abilities of the textbooks in assisting and guiding the teachers to teach efficiently in the classroom. The study is therefore, a pilot study. Findings of the study are expected to enlighten educational policy makers, planners, curriculum developers and textbook writers and enable them to improve the existing textbooks particularly of English subject. It might as well be helpful in suggesting remedial measures in order to bring improvement in the teaching-learning method of the particular language for a better future.

Objectives of the Study

The present study was conducted with the following objectives:

1. To find out the perception of High School teachers on the physical aspects of English textbooks prescribed for Class X by Mizoram Board of School Education.
2. To find out the perception of High School teachers on the academic aspects of English textbooks prescribed for Class X by Mizoram Board of School Education.
3. To find out the perception of High School teachers on fulfilment of objectives of teaching English at Secondary level.

Delimitation of the Study

High School teachers in the present study are delimited to high school teachers teaching English subject in class X in Aizawl city.

Methodology of the Study

Descriptive and analytical methods of research were employed for the present study. The population comprised of all the High School English teachers in Aizawl

city out of which a sample of 40 English teachers were taken by following simple random sampling method.

A questionnaire for studying the perception of high school English teachers on English textbooks prescribed for Class X by the Mizoram Board of School Education was constructed by the investigator which was then distributed, collected and tabulated in the form of tables. Simple statistical techniques such as frequencies and percentages were worked out to facilitate analysis and interpretation of data.

Analysis of Data and Findings

Objective-wise analysis of data and findings are presented as below:

1. Perception of teachers on physical aspects of English textbooks prescribed for Class X by Mizoram Board of School Education:

Table - 1
Perception of teachers on physical aspects of English textbooks prescribed for Class X by Mizoram Board of School Education

Sl. No	Physical Aspects of English Textbooks	High School Teachers N=40					
		Govt. H/S Teachers N= 20		Private H/S Teachers N= 11		Deficit H/S Teachers N=9	
		Yes	No	Yes	No	Yes	No
1	Designs of the textbook covers are appealing enough	16 (80)	4 (20)	8 (72.73)	3 (27.27)	7 (77.78)	2 (22.22)
2	Paper quality is appropriate	20 (100)		11 (100)		9 (100)	
3	Printing quality is good enough	20 (100)		10 (90.9)	1 (9.1)	9 (100)	
4	Fonts are appropriate	20 (100)		11 (100)		9 (100)	
5	Bindings of textbooks are good enough for students	18 (90)	2 (10)	10 (90.9)	1 (9.1)	9 (100)	
6	Prices of the textbooks are affordable	16 (80)	4 (20)	9 (81.81)	2 (18.19)	6 (66.67)	3 (33.33)

(Figures in parenthesis indicate percentages.)

It is found vide Table 1 that 80% of teachers from Government schools are of the opinion that the designs of the textbook covers are appealing enough while 20% says that the textbook covers are not appealing enough. 72.73% of teachers belonging to private High Schools and 77.78% of teachers belonging to Deficit High Schools are in line with the majority of the Government High school teachers' opinions. On the other hand, 27.27% of Private High Schools teachers and 22.22% of Deficit High school teachers are of the opinion that the textbook cover designs are not appealing enough for Class X students.

All teachers are of the opinion that the quality of the paper used in the textbooks is appropriate and of a good quality.

All teachers from the Government run high schools and Deficit High Schools are of the opinion that the printing quality of the textbooks is good enough. Another 90.90% of Private school teachers are in line with this view while 9.10% of teachers from private schools do not agree to this view point.

All teachers are of the opinion that the fonts used in typing the textbooks are appropriate for Class X students.

It has also been found that majority of all the school teachers i.e. 90%, 90.90% and 100% of Government, Private and Deficit high school teachers respectively are of the opinion that the bindings of the textbooks are good enough for students.

As many as 80%, 81.81% and 66.67% of teachers from the Government high schools, private high schools and deficit high schools are of the opinion that the prices of the textbooks are affordable for students in Mizoram.

2. **Perception of teachers on the Academic Aspects of English Textbooks prescribed for Class X by Mizoram Board of School Education:** This section highlights the perception of teachers on certain academic aspects of English textbooks like subject matter, contents, illustrations in the textbooks etc.

Table 2
Perception of High School Teachers on the Academic Aspects of English Textbooks prescribed for Class X by Mizoram Board of School Education

Sl. No	Academic Aspects of English Textbooks	High School Teachers N=40					
		Govt. H/S Teachers N=20		Private H/S Teachers N=11		Deficit H/S Teachers N=9	
		Yes	No	Yes	No	Yes	No
1	Subject matter is presented in an organised manner	12 (60)	8 (40)	5 (45.45)	6 (54.55)	5 (55.56)	4 (44.44)

2	Content contains real-life issues that motivate learners	18 (90)	2 (10)	10 (90.9)	1 (9.1)	8 (88.89)	1 (11.11)
3	Content meets students' needs and can be adapted for the purpose	15 (75)	5 (25)	8 (72.73)	3 (27.27)	8 (88.89)	1 (11.11)
4	Content matter represents a variety of literary genres	14 (70)	6 (30)	9 (81.81)	2 (18.19)	6 (66.67)	3 (33.33)
5	Lessons are interesting	12 (60)	8 (40)	6 (54.55)	5 (45.45)	7 (77.78)	2 (22.22)
6	Illustrations are varied and attractive	9 (45)	11 (55)	3 (27.27)	8 (72.73)	4 (44.44)	5 (55.56)

(Figures in parenthesis denote percentage)

It is found from data vide Table 2 that

a) 60% of Government high school teachers and 55.56% of deficit school teachers perceived that the subject matters are presented in an organised manner while 54.55% of private school teachers are of the opinion that the subject matters are not presented in an organised manner.

b) As many as 90% of Government high school and private high school teachers and 88.89% of deficit high school teachers are of the opinion that the contents contain real life issues that motivate learners in their learning.

c) 75%, 72.73% and 88.89% of teachers from the Government, private and deficit high schools are of the opinion that the contents of the textbooks meet students' needs in the teaching learning process.

d) 70% of Government high school teachers are of the opinion that the content matters represent a variety of literary genres while 81.81% and 66.67% of private and deficit high school teachers respectively are in line with this view. Another 30%, 18.19% and 33.33% of teachers from the Government, private and deficit schools respectively do not agree to this view point.

e) 60%, 54.55% and 77.78% of teachers from Government, private and deficit schools respectively are of the opinion that the lessons in the textbooks are interesting and suitable for Class X students.

f) 55%, 72.73% and 55.56% of teachers from Government, private and deficit schools respectively are of the opinion that the illustrations are not varied and attractive enough for students.

Table 3

Perception of High School teachers on Grammar in English Textbooks prescribed for Class X by Mizoram Board of School Education

Sl. No	Grammar in English Textbooks	High School Teachers N=40					
		Govt. H/S Teachers N=20		Private H/S Teachers N=11		Deficit H/S Teachers N=9	
		Yes	No	Yes	No	Yes	No
1	Students face difficulties in Grammar	15 (75)	5 (25)	9 (81.81)	2 (18.19)	7 (77.78)	2 (22.22)
	(If "yes" choose from the following)						
i.	Grammar rules are not presented in an increasing order of difficulty	8 (53.33)		5 (55.56)		7 (100)	
ii.	Exercises and activities do not facilitate the use of grammar rules	7 (46.67)		4 (44.44)		5 (71.46)	
iii.	Exercises are not appropriate for Class X	5 (33.33)		3 (33.33)		3 (42.86)	
iv.	Limitation of time	7 (46.67)		5 (55.56)		6 (85.71)	

(Figures in parenthesis denote percentage)

The above table shows that -

a) 75% of Government school teachers, 81.81% of private teachers and 77.78% of deficit school teachers are of the opinion that students face problems in learning grammar in the classrooms. 8 out of 20 teachers from Government high schools believed that the grammar rules are not presented in an increasing order of

difficulty while 5 out of 11 teachers from private schools and 7 out of 9 teachers from deficit schools are in line with this.

b) 7 out of 20 Government teachers, 4 out of 11 private teachers and 5 out of 9 deficit teachers are of the opinion that exercises and activities do not facilitate the use of grammar rules.

c) 5 Government teachers and 3 each from private and deficit teachers are of the opinion that the exercise are not appropriate to learn grammar.

d) 7 Government teachers, 5 private teachers and 6 deficit teachers are of the opinion that there is limitation of time to learn all the grammatical items presented in the textbooks.

Table 4

Perception of High School teachers on Activities and exercises in English Textbooks prescribed for Class X by Mizoram Board of School Education

Sl. No	Activities and Exercises in English Textbooks	High School Teachers N=40					
		Govt. H/S Teachers N=20		Private H/S Teachers N=11		Deficit H/S Teachers N=9	
		Yes	No	Yes	No	Yes	No
1	There is limitation of time to complete activities and exercises	12 (60)	8 (40)	10 (90.9)	1 (9.1)	7 (77.78)	2 (22.22)
2	There are opportunities to make use of new words learned by students in activities and exercises	15 (75)	5 (25)	6 (54.55)	5 (45.45)	5 (55.56)	4 (44.44)
3	There are rooms to make use of grammatical rules learned in class	19 (95)	1 (5)	6 (54.55)	5 (45.45)	7 (77.78)	2 (22.22)
4	Students face problems in solving activities and exercises.	12 (60)	8 (40)	7 (63.64)	4 (36.36)	4 (44.44)	5 (55.56)
5	Example sentences are useful for students in working out the exercises	17 (85)	3 (15)	5 (45.45)	6 (54.55)	6 (66.67)	3 (33.33)

(Figures in parenthesis denote percentage)

Analysis of vide data table 4 shows that:

a) 60%, 90.90% and 77.78% of teachers from government, private and deficit schools respectively have the opinion that there is limitation of time to complete activities and exercises within school hours.

b) 75%, 54% and 55% of teachers from government, private and deficit schools respectively have the opinion that there are opportunities to make use of new words learned by students in activities and exercises

c) 95%, 54.55% and 77.78% of teachers from government, private and deficit schools respectively have the opinion that there are rooms to make use of grammatical rules learned in class.

d) 60% of Government teachers and 63.64% of private teachers have the opinion that students face problems in solving activities and exercises. However, 55.56% of deficit teachers have the opinion that students do not face problems.

e) 85% of Government teachers are of the opinion that example sentences are useful for students in working out the exercises while only 44.45% of private teachers agree to this. The other 54.55% of private teachers are of the opinion that the example sentences are not useful. On the other hand, it was found that 66.67% of deficit school teachers are of the opinion that these example sentences are quite useful in working out the exercises.

3. Perception of High School Teachers on Objectives of Teaching English at Secondary Level:

Table 5
Perception of High School teachers on Listening Skills in English Textbooks prescribed for Class X by Mizoram Board of school Education.

Sl. No	Listening Skills in English Textbooks	High School Teachers N=40					
		Govt. H/S Teachers N=20		Private H/S Teachers N=11		Deficit H/S Teachers N=9	
		Yes	No	Yes	No	Yes	No
1	Textbooks provide ample room for development of Listening Skills	8 (40)	12 (60)	5 (45.45)	6 (54.55)	3 (33.33)	6 (66.67)
Reasons of teachers for opting “No” are shown below							
i	There is lack of listening activity		8 (66.67)		1 (16.67)		3 (50)

ii	Lack of clear instructions		4 (33.33)		2 (33.33)		4 (66.67)
iii	Listening activities and exercises are not good enough		5 (41.67)		1 (16.67)		4 (66.67)
iv	Lack of time		6 (50)		5		6
v	Lack of appropriate audio-visual aids		6 (50)		4 (66.67)		4 (66.67)
vi	Short dialogues and daily life situations are not included		5 (41.67)		3 (50)		3 (50)

(Figures in parenthesis denote percentage)

An analysis of the above table, Table 5 shows that 60% Government teachers, 54.55% private teachers and 66.67% of deficit teachers are of the opinion that the textbooks do not provide ample room for the development of listening skills. Some common problems according to the teachers are lack of listening activity, lack of clear instructions , listening activities and exercises are not good enough , lack of time, lack of appropriate audio-visual aids, and short dialogues and daily life situations are not included in the texts.

Table 6

Perception of High School teachers on Speaking skills in English Textbooks prescribed for Class X by Mizoram Board of School Education

Sl. No	Speaking Skills in English Textbooks	High School Teachers N=40					
		Govt. H/S Teachers N=20		Private H/S Teachers N=11		Deficit H/S Teachers N=9	
		Yes	No	Yes	No	Yes	No
1	Textbooks help in developing speaking skills	5 (25)	15 (75)	2 (18.18)	9 (81.82)	2 (22.22)	7 (77.78)
	Reasons for opting “No”						
i	Lack of speaking activities		9 (60)		4 (44.44)		7 (100)

ii	Lack of time		8 (53.33)		6 (66.67)		7 (100)
iii	Lack of opportunity to speak up		7 (46.67)		6 (66.67)		5 (71.49)
iv	Exercise and activities are not good enough to develop speaking skills		6 (40)		3 (33.33)		5 (71.49)

(Figures in parenthesis denote percentage)

Analysis of data vide table 6 shows that:

a) 75% of Government teachers, 81.82% of private teachers and 77.78% of deficit teachers agree to the point that textbooks do not help in developing speaking skills. Out of the 15 Government teachers who opted "No", 9 (60%) of them are further opting for the first point given in the questionnaire which is that there is lack of speaking activities in the textbooks. 44.44 per cent of private teachers and 100 per cent of deficit teachers are too opting for this point.

b) 53.33 per cent of Government teachers, 66.67 per cent of private teachers and 100 per cent of deficit teachers are of the opinion that there is lack of time to practise speaking skills in the classrooms.

c) 46.67 per cent of Government teachers, 66.67 per cent of private teachers and 71.49 per cent of deficit teachers are of the opinion that there is lack of opportunity for students to speak up in the classrooms.

d) 40 per cent of Government teachers, 33.33 per cent of private teachers and 71.49 per cent of deficit teachers are of the opinion that exercises and activities are not good enough to develop speaking skills.

Table 7
Perception of High School Teachers on Reading skills in English Textbooks prescribed for Class X by Mizoram Board of School Education

Sl. No	Reading Skills in English Textbooks	High School Teachers N=40					
		Govt. H/S Teachers N=20		Private H/S Teachers N=11		Deficit H/S Teachers N=9	
		Yes	No	Yes	No	Yes	No
1	Textbooks help in developing the reading skills	6 (54.55)	5 (45.45)	6 (54.55)	5 (45.45)	7 (77.78)	2 (22.22)

(Figures in parenthesis denote percentage)

An analysis of the above table shows that 54.55% of both the Government and private teachers are of the opinion that textbooks help in developing the reading skills while 45.45% of the Government and private teachers are not in line with this. 77.78% of deficit teachers are of the opinion that the textbooks help in developing the reading skills while 22.22% are not again in line with the statement. Some of the major problems opted are lack of reading activities, lack of time, uninteresting stories and activities and the difficulties of understanding the words given in the textbooks.

Table 8
Perception of High School teachers on Writing Skills in English Textbooks prescribed for Class X by Mizoram Board of School Education

Sl. No	Writing Skills in English Textbooks	High School Teachers N=40					
		Govt. H/S Teachers N=20		Private H/S Teachers N=11		Deficit H/S Teachers N=9	
		Yes	No	Yes	No	Yes	No
1	Textbooks help in developing writing skills	12 (60)	8 (40)	4 (36.37)	7 (63.63)	6 (66.67)	3 (33.33)

(Figures in parenthesis denote percentage)

Analysis of the above table shows that 60% of Government teachers and 66.67% of deficit teachers are in line with the statement that textbooks help in developing the writing skills while 63.63% of Private teachers are of the opinion that textbooks are not sufficient enough in developing the writing skills of students. Among those 8 government teachers,7 private teachers and 3 deficit teachers who do not think that the textbooks are sufficient enough in developing the writing skills, problems like lack of activities to develop writing skills, lack of time, lack of interesting and motivational topics are common problems.

Conclusion

The present study showed that majority of the teachers shared the same idea that the textbooks were good and appropriate in terms of the physical aspects. However, majority of the teachers i.e. 72.50% were of the opinion that the textbooks did not help in developing the Speaking skills of students. It was found that there is lack of opportunity for students to participate and speak up in the classroom.

It is recommended that guidelines to develop Speaking Skills and Listening Skills must be provided. More rooms for students to participate in the classroom interactions

must be made. The textbooks must facilitate the use of grammar rules which are expected to be presented in an increasing order of difficulty.

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"Great minds discuss ideas; average minds discuss events; small minds discuss people."

- Eleanor Roosevelt

"I have not failed. I've just found 10,000 ways that won't work."

- Thomas A. Edison

Family Environment of University Hostel Students : An Analytical Study

Narikimelli Pramod Kumar *

Abstract

The family is the oldest and the most important of all the institutions that man has devised to regulate and integrate one's behavior. The family is the first to affect the individual. Family environment is that in which an individual lives in, interacts with the other family members in certain biological, physical, cultural, social, moral, psychological, financial, emotional, normative and relative conditions. The individual character, behavior, habits, interests, hobbies, and biological, social, psychological, moral, emotional and cultural development, each and every aspect depends on the nature and type of family environment. Family environment is an important factor that affects a child's growth and development. It is the place where the child gets education. In order to provide the students a proper treatment in school, teachers have to know the influence of their family environment like the nature of family constellation, condition of the family, economic status and their social status. Through understanding of the family condition, the teacher can provide effective teaching. The present study has concluded that there is no significant difference in family environment on boys and girls from arts stream, boys and girls from science stream, arts and science students, boys from arts and science, girls from arts and science and total boys and girls. The study has further concluded that Mizoram university hostel students, both arts and science students have average family environment.

Key words: *Development, Environment, Family, Teaching-leaning.*

Introduction:

The family is the first to affect the individual. The family is the oldest and the most important of all the institutions that man has devised to regulate and integrate his behavior as he strives to satisfy his basic needs. The family is basically a unit in which

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parents and children live together. Its key position rests on its multiple functions in relation to overall well-being. Therefore, it would emerge that not only the social and physical well-being of the individual is taken care of by the family, but the psychological well-being as well. It is the family which gives the child his first experience of living. It gets him when one is completely uninformed, unprotected, before any other agency has had a chance to affect him. The influence of the family on the child is immense. The influence of the other agencies, although indispensable, must build upon the groundwork furnished by the family.

Family environment consists of two words 'family' and 'environment'. Family refers to the social unit of two or more persons related by blood, marriage, or adoption and having a shared commitment to mutual relationship. It also includes a group of people who are related to each other, such as a mother, a father, and their children. On the other hand, environment refers to the whole of surrounding things. It is also the sum total of conditions that surrounds us at a given point of time and space. It is comprised of the interacting systems of physical, biological and cultural elements which are interlinked both individually and collectively.

Thus, family environment is that in which an individual lives in, interacts with the other family members in certain biological, physical, cultural social, moral, psychological, financial, emotional, normative and relative conditions. The individual character, behavior, habits, interests, hobbies, and biological, social, psychological, moral, emotional and cultural development, each and every aspect depends on the nature and type of family environment. The family environment is influenced by a number of factors like the nature of family constellation, number of children in the family, maternal (paternal) employment, and socio-economic and religious background of the family.

Need of the Study:

To understand the whole family environment, it is important to understand the family, the home and their functions. Family environment is an important factor that affects the children's growth and development. It is the oldest and the most important of all institutions that man has devised to regulate and integrate his behavior as he strives to satisfy his basic needs. The family is the first to affect the individual. It is the place where the child gets education. In order to give the students a proper treatment in school, the teachers have to know the influence of their family environment like the nature of family constellation, condition of the family, their economic and social status. To offer effective teaching learning, teacher needs to understand and know their family

background. The investigator collected data from students staying in the Mizoram university hostels.

Objectives:

1. To compare the family environment of male and female students from arts stream.
2. To compare the family environment of male and female students from science stream.
3. To compare the family environment of students from arts and science streams.
4. To compare the family environment of male students from arts and science streams.
5. To compare the family environment of female students from arts and science streams.
6. To compare the family environment of male and female students.

Hypotheses:

H_o-1 : There is no significant gender difference among arts stream students in their family environment.

H_o-2: There is no significant gender difference among science stream students in their family environment.

H_o-3: There is no significant difference between arts and science streams students in their family environment.

H_o-4: There is no significant difference between arts and science male students in their family environment.

H_o-5 : There is no significant difference between arts and science female students in their family environment.

H_o-6: There is no significant gender difference among the students in their family environment.

Methodology:

The survey method was adopted in the present study to find out the family environment of students. The population of the study is students residing in Mizoram University hostels. The investigator selected 100 students (50 boys and 50 girls) randomly from Mizoram University hostels as the sample of the study. In this study, the investigator used 'family environmental scale' constructed and standardized by Harpreet Bhatia and Chada (1993) for data collection. The investigator personally visited the hostels to collect data from Ainawn girls' hostel and Lengteng boys'

hostel. Before administering the test, the instruction given in the test booklet was read and explained to the subjects by the investigator. Having made sure that the subjects have understood the instruction procedure for answering the test booklet, the actual administration of the test was undertaken. After completing the test booklet, the investigator collected those booklets and carefully checked each of the answer sheets. After this, the scoring was done according to the manual. The score was tabulated and analyzed and the results were interpreted according to the norms provided in the manual.

Family environment scale dimensions: The following are the different dimensions of the family environment scale.

1. **Cohesion:** Degree of openly expressed aggression and conflict among family members.
2. **Expressiveness:** Extent to which family members are encouraged to act openly and expressed their feelings and thoughts directly.
3. **Conflict:** Amount of openly expressed aggression and conflict among family members.
4. **Acceptance and Caring:** Extent to which the members are unconditionally accepted and the degree to which caring is expressed in the family.
5. **Independence:** Extent to which family members are assertive and independently make their own decisions.
6. **Active-Recreational Orientation:** Extent of participation in social and recreational activities.
7. **Organization:** Degree of importance of clear organization structure in planning family activities and responsibilities.
8. **Control:** Degree of limited setting within a family.

Data Analysis and Discussion:

It consists of two sections. The first section deals with distribution of variables and the second section deals with differential studies. After data are collected, they must be processed and analyzed to draw proper inference. Analysis of data means studying the material in order to derive inherent facts and meanings. It involves breakdown of existing complex factors into simplest parts and putting the parts together in new arrangements for the purposes of interpretation. Discussion calls for the critical examination of the result of one's analysis in the light of all limitations of research process. The investigator analyzes, discusses and concludes the results objective wise. The family environment scores among students from science and arts streams are analyzed. They are given in the following table:

Table 1: Mean scores of MZU hostel male and female arts students with respect to family environment.

S. No.	Domain	Male arts students	Female arts students
1	Cohesion	49.72	51.92
2	Expressiveness	31.08	43.2
3	Conflict	41.08	42.96
4	Acceptance and Caring	42.44	44.6
5	Independence	29.68	29.68
6	Active-Recreational Orientation	27.68	28.52
7	Organization	7.98	8.12
8	Control	13.96	15.16
Total family environment		**242.52**	**255.16**

From table -1, it can be seen that the family environment scores among different categories were analyzed and simple comparisons without any significant tests carried out to describe the family environment scores. The male arts students from Mizoram university hostel scored highest in the cohesion (49.72) and lowest score in the organization (7.98). Similarly, the female arts students also scored high in ~~the~~ cohesion (51.92), and had lowest score in organization (8.12). Regarding the total family environment of the Mizoram university hostel students, female arts students scored 255.16 while male arts students scored 242.52

Table 2: Mean scores of MZU hostel male and female science students with respect to family environment.

S. No.	Domain	Male science students	Female science students
1	Cohesion	49.76	51.24
2	Expressiveness	32	33.32
3	Conflict	41.8	42.92
4	Acceptance and Caring	43.72	45.2
5	Independence	29.48	30.4
6	Active-Recreational Orientation	28.52	28.96
7	Organization	7.6	7.84
8	Control	14.4	15.44
Total family environment		**247.28**	**255.32**

From table 2, it can be observed that the family environment scores among different domains were calculated and simple comparisons without any significant tests were made to describe the family environment scores. The male science students from Mizoram university hostel scored highest in the cohesion (49.76) and lowest in

the organization (7.60). Likewise, the female science students also scored high in the cohesion (51.24), and lowest in organization (7.84). Regarding the total family environment of the Mizoram university hostel students, female science students scored 255.32 while male science students scored 247.28.

Table 3: Total mean scores of MZU hostel arts and science students with respect to family environment.

S. No.	Domain	Arts students	Science students
1	Cohesion	50.82	50.5
2	Expressiveness	32.64	32.66
3	Conflict	42.02	42.36
4	Acceptance and Caring	43.52	44.46
5	Independence	29.68	29.94
6	Active-Recreational Orientation	28.1	28.74
7	Organization	7.8	7.72
8	Control	14.56	14.92
Total family environment		**248.84**	**251.3**

From table 3, one can observe the total family environment scores among different domains were analyzed and simple comparisons without any significant tests were provided to describe the family environment scores. The arts stream students in Mizoram university hostel scored highest in the cohesion (50.82) and lowest score in the organization (7.80). Similarly, the science stream students also scored high in the cohesion (50.50), and had the lowest score in organization (7.72). Regarding the total family environment of the Mizoram university hostel students, science stream students scored 251.30 while arts stream students scored 248.84.

Table 4: Total mean scores of MZU hostel male and female students with respect to family environment.

S. No.	Domain	Male students	Female students
1	Cohesion	49.74	51.58
2	Expressiveness	31.54	33.76
3	Conflict	41.44	42.94
4	Acceptance and Caring	43.08	44.9
5	Independence	29.58	30.04
6	Active-Recreational Orientation	28.1	28.74
7	Organization	7.54	7.98
8	Control	14.18	15.3
Total family environment		**244.9**	**255.24**

From table 4, it can be found out that the family environment scores among different categories were analyzed and simple comparisons without any significant tests were made to describe the family environment scores. Male students in Mizoram university hostel scored highest in the cohesion (49.74) and lowest score in the organization (7.54). Similarly, female students also scored high in the cohesion (51.58), and lowest in organization (7.98). Regarding the total family environment of the Mizoram university hostel students, the female students scored 255.24 while the male students scored 244.90.

A comparison of the family environment scores of male and female students was made to find out the difference in their level of family environment. The analysis is as follows:

Table No. 5: Comparison of different groups of students with respect to their family environment

H_o. No.	Category	N	Mean	SD	t-value
1	Males from arts stream	25	242.52	25.06	0.27@
	Females from arts stream	25	255.16	20.56	
2	Males from science stream	25	247.28	15.16	1.22@
	Females from science stream	25	255.32	23.77	
3	Students from arts stream	50	248.84	25.73	0.03@
	Students from science stream	50	251.3	20.31	
4	Males from arts stream	25	242.52	25.6	0.16@
	Males from science stream	25	247.28	15.61	
5	Females from arts stream	25	255.16	20.56	0.92@
	Females from science stream	25	255.32	23.77	
6	All males	50	244.9	20.77	0.16@
	All females	50	255.24	24.32	

@ Not significant at 0.05 level

H_o. 1 states that there is no significant gender difference among arts stream students in their family environment. In the above table, it can be seen that there is no significant difference in the mean scores of both the cases. The standard deviation indicates that the divergence in scores is more among males than females. As the computed critical ratio value is 0.27 which is less than the table value, it can be said that there is no significant difference in the family environment of male and female from arts stream. Therefore null hypothesis that there is no significant gender difference among arts stream students in their family environment can be accepted.

H_o. 2 states that there is no significant gender difference among science stream students in their family environment. In the above table, It can be seen clearly that there is no significant difference between the mean scores of both the cases. The standard deviation indicates that the divergence in scores is more among females than males. As the computed critical ratio value is 1.22 which is less than the table value, it can be said that there is no significant difference in the family environment of males and females from science stream. Therefore null hypothesis that there is no significant gender difference among science stream students in their family environment can be accepted.

H_o. 3 states that there is no significant difference between arts and science streams students in their family environment. From the above table, it can be seen that there is no significant difference between the mean scores of both the cases. The standard deviation indicates that the divergence in scores is more in arts stream students than science stream. As the computed critical ratio value is 0.03 which is less than the table value, it can be said that there is no significant difference in family environment of arts and sciences students. Therefore null hypothesis that there is no significant difference between arts and science streams students in their family environment can be accepted.

H_o.4 states that there is no significant difference between arts and science male students in their family environment. From the above table, it can be seen that that there is no significant difference in the mean scores of both the cases. The standard deviation indicates that the divergence in scores is more among male arts students than male science students. As the computed critical ratio value is 0.16 which is less than the table value, it can be said that there is no significant difference in the family environment between male arts and male science students. Therefore, the null hypothesis that there is no significant difference between arts and science male students in their family environment can be accepted.

H_o.5 states that there is no significant difference between arts and science female students in their family environment. From the above table, it can be seen that there is no significant difference between the mean scores of both the cases. The standard deviation indicates that the divergence in scores is more among female science students than the female arts students. As the computed critical ratio value is 0.92 which is less than the table value, it can be said that there is no significant difference in the family environment of arts and science female students. Therefore, the null hypothesis that there is no significant difference between arts and science female students in their family environment can be accepted.

H_o. 6 states that there is no significant gender difference among the students in their family environment. From the above table, it can be seen that there is no significant

difference in the mean scores of both the cases. The standard deviation indicates that the divergence in scores is more among females than males. As the computed critical ratio value is 0.16 which is less than the table value, it can be said that there is no significant difference in the family environment of males and females. Therefore, the null hypothesis that there is no significant gender difference among the students in their family environment can be accepted.

Findings:

From the data tabulated and analyzed, the major findings can be sorted out:

1. From the findings of family environment, it can be seen that there is no significant difference between male and female arts students. It also can be seen that there is no significant difference between male and female science students.
2. It is clear that there is no significant difference between arts and science students in their family environment.
3. It is clear that there is no significant difference between male arts and male science students in their family environment. It can also be seen that there is no significant difference between female arts and female science students in their family environment.
4. It can be seen that there is no significant difference between male and female students in their family environment.

Suggestions:

1. To have a healthy family environment, each member of the family ~~member~~ should feel secure, and should love and care for each other.
2. To have a positive family environment, there must be commitment, help and support among family members.
3. Each member of the family should try to foster positive relationship among the family members.
4. There should be an open environment among the family members so that they can share their emotions and feelings with each other without hesitation.
5. There should be a person in the family to take up leadership role so that the family can function smoothly.
6. Family should try to provide a suitable learning environment for their children.
7. Parents should acquire knowledge of psychology of the family. They must teach and show good manners to their children in the best possible way.

Conclusion:

The methodology of the present study provides guidelines for the investigators about the way the study has to be conducted. It is imperative to adopt a suitable methodology whereby we can generalize the findings. This research finds out the factors affecting the family environment such as cohesion, expressiveness, conflict, acceptance and caring, independent, active-recreational orientation, organization, and control. The present study has concluded that there is no significance difference in family environment with respect to arts male and female, science male and female, arts and science students, arts male and science male, arts females and science females, and males and females when taken together.

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Learning Science is All about Getting the Concepts Right

Nitu Kaur *

Abstract

Science is more of a verb than noun. This suggests that basic nature of the subject is doing, making and constructing physical processes out of the mental cognitive structures. Science is a culture free subject unlike other culturally loaded subjects like literature and social studies and hence Science can be taught best in stimulating environments that triggers responses contributing in development of the cognitive structures of the learners without the influence of environmental barriers, loads and hindrances. Therefore, the psychological state of the mind of the learner is also vital statistic to decide for meaningful learning to take place. In Meaningful Science Learning (MSL) learners are equal participant in knowledge construction and in the process they verify the underlying hypothesis of theories many times giving it more validity. In this process they build up concepts and interlink concepts to get the clear picture perfect clarity about the underlying theory. Concepts are like the building blocks of Science Learning. Getting the concept right is a successful learning in Science, the possibility of which is enhanced by doing the things. It is the consequence of error and wrong action in the experiments that lead the learner towards the right concept. The present paper is an attempt to understand the reasons behind misconnects (misconceptions) about science concepts and ways to minimize them.

Key words: *Science, Learning, Concepts, Misconnects*

What is a concept?

There are so many concepts around us, like a table is a concept, a chair is a concept. A concept helps us to define some essential attributes/ properties and some non-essential attributes for a particular object or a particular phenomenon. This thus enables us to categorize an object within certain defined dimensions and also enable us to distinguish it at the same time from other objects which (may be) are similar.

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For e.g. a table is categorized by giving it a special property of a particular height, having four legs and a rectangular flat surface, but a table may also have one leg and a round, or square or triangular flat surface. So these attributes generalize the concept. This process of simplifying the concept is called generalization. What is most important is smooth generalization without the acquisition of any erroneous concept by the learner.

A concept is defined by Lynn Erickson as "a mental construct that is timeless, universal and abstract." Further the author explains, "Concepts, such as ecosystems, prime numbers, and culture, are rich ideas to which facts and examples are attached. Using examples and non-examples as well as comparison and contrast as students are learning new concepts helps to clarify complex ideas, to expose relationships and patterns among even dissimilar concepts, and to organize new information into meaningful constructs." A concept can also be defined as a set of specific objects, symbols or events which share common characteristics (critical attributes) and can be referenced by a particular name of symbol (Tennyson and Park, 1980).

In order to facilitate Higher Order Learning (HOL) correct and accurate concept formation is inevitable requirement in the absence of which misconceptions begin to assimilate in the learner's mind. The concept needs to be provided to the learner in a sequential way keeping in view the mental age of the learner. Often too much of abstraction in concepts may be a hindrance in concept attainment by a group of learners of a specific mental age. For e.g. algebra cannot be taught to children who have not entered formal operational stage of cognition. Formal Operational stage as defined by Sir Jean Piaget in his theory of Cognitive Learning, is the highest level of cognition.

Since majority of science concepts need the learners to operate at formal operational level, which every learner is not capable to exhibit with equal intensity due to differences in their abilities of grasp, comprehend and analyse, misconceptions may emerge out of different situations a learner encounters while learning concepts. Ability to comprehend abstraction is a higher order learning skill which a learner continues to attain in the process of science leaning. Leading to logic through abstraction is an art and it can be found in its highest glory within students who have got their fundamental concepts right. Doing classifications, deriving analogies, finding correlations, establishing generalizations etc. are ways to concept attainment.

How can we teach Science?

We can teach science by giving concepts to the learners. One way of teaching is asking questions like, why does the apple fall down, and not up? This arouses a curiosity in the learner's mind and he/she is anxious to find out the answer. The inquisitive nature of man always results in finding out something. When a teacher throws a

particular question the child's mind is particularly directed in that direction. Teaching science in other words means to give direction to the mind.

Science is traditionally taught in two ways, firstly by providing the examples from day to day life and proceeding toward generalizations, popularly known as going from Concrete to Abstract. The second way is proceeding from Generalizations to examples i.e. moving from Abstract to Concrete. Out of these two, the first method is more suitable for teaching science concepts, but it demands more time.

The former method is the Inductive method of teaching which can be referred as a Leading approach as here the learner is led to discover the truth for himself.

In the inductive method, the students are led from particular instances to general conclusions. For e.g. after examining a number of examples from daily lives students conclude that objects expand upon heating and contract upon cooling. Similarly students by measuring the angles of a triangle come to the conclusion that their sum is equal to two right angles.

The later method is the Deductive method of teaching which is just opposite of inductive method. It can be also referred as Verifying approach as here the formula or the principle is supplied beforehand to the student and they have to come up with the solution of the problem or verification of the principle. Here the students proceeds from general to particular, abstract to concrete and formula to examples. Here the task of teachers gets simplified and speed and accuracy of students' performance increases but the motivation and interest amongst the students to unfold the truth is missing as truth is not of much value to them.

When we present certain examples to students, for e.g. while teaching Newton's First Law of Motion, a teacher should provide several examples of defining Law of Inertia. After making the student aware of the law through examples it becomes easy to give the generalized concept of the Law i.e. the definition. But obviously this process is a bit time taking. Often in a normal classroom of 30-45 minutes, it is not possible to cover every example. Therefore some teachers come to the classroom, give generalized concepts and give the task to the students to study examples and understand them in the context of taught concepts. Often in doing so, students pick up misconceptions while not able to understand the examples in the light of taught concept.

Learning to ask Questions: an effective process to eliminate Misconception from Science Learning

Every scientific endeavour begins with asking question out of inquisitive nature of a young mind. More and more a young child interacts with his/her environment his/

her mind is arrested with questions that need immediate reactions from the people around them. By default the mind tends to find the answer on its own and derives an answer out of respective situation. This is a naturalistic way of learning and in this process if a positive support by the elders is provided learning is facilitated.

Often children fail to ask questions out of lack of stimulating environment. This desire of the child is further de-motivated when elders do not participate in providing desired responses, either by impatience of the elders to listen to the child's question or by discouraging the young minds to ask question, in a way teaching them not to ask question, as if asking question is disrespectful.

A classroom is a mixed bag of different parallel existing pre-conceived notions and ideas which are resultant of various environmental circumstances in prior classroom experiences. When a child learns about a new concept then he/she makes use of pre-existing ideas to understand it but a misunderstood prior knowledge may lead to misconception further. It thus becomes a vicious cycle leading to many erroneous concepts at higher level of learning.

A misconception is misinformed information which a child acquires for the first time and which continues to exist permanently in cognitive structure as long as its authenticity is challenged. Hancock (1940, quoted in Mestre, 1989) defined a misconception as any unfounded belief that does not embody the element of fear, good luck, faith or supernatural intervention. American Heritage Dictionary (2009) described misconception as an idea about or an explanation for a phenomenon that is not accurately supported by accepted physical principles , *a mistaken thought, idea or notion; a misunderstanding.*

In our daily lives we fall trap to so many misunderstanding and misinterpretations in day to day affairs. As far as Science learning is concerned it is obvious that in the process of learning children may pick up misconceptions and they constantly need help from the teachers to identify the missing links in the process of learning. Concept maps give a holistic view of learning a concept. It is the job of the teacher to look into this bird's eye view through concept mapping and work towards building the relationship between various sub-concepts in the topic being taught. Teacher while teaching should also try to find out the misconceptions acquired over the process of understanding. Often wrong answers can lead to the misconcepts and a teacher should work upon these wrong answers or errors or misinformations.

Misconceptions or erroneous ideas may come from strong word association, confusion, conflict or lack of knowledge (Fisher, 1985). If we shuffle some of our childhood memories, there are many incidences where our logical reasoning was arrested by authority and our young minds entered state of confusion. The immediate

people in our surrounding who come for our rescue happen to sometime misguide us, not always. We acquire a sense of confidence towards the rescuer and begin to believe him/her religiously. This is a misconcept. For e.g. one incidence from our childhood memories happen to be a famous belief, which is when by chance we swallow seeds of apple, orange or watermelon we were misinformed that soon a tree will grow from inside our stomach.

The misconceptions interfere with students' learning when students use them to interpret new experiences. Also the learners' are emotionally and intellectually attached to their misconceptions because they actively constructed them. Hence students bestow their misconceptions with great reluctance (Mestre, 1999). They advocate them, are too biased for them and deny changing them.

Several misconcepts (misconnects) prevail in the minds of the students which are the result of miscommunications, missing links, lack of connectivity amongst the important concepts in the subjects and misinterpretations by the students.

Some Examples that continue to exist at elementary level of learning-

- It is a misconcept that plant do respiration only during night as they do photosynthesis in day. Actually while imparting this concept it should be made clear that the rate of respiration is higher during night and less during day. It has to be taught at elementary level only that photosynthesis and respiration are opposite biochemical processes.
- Plants do photosynthesis only in presence of sunlight. Research indicates that plants can grow in presence of special type of artificial light chambers which is comparable to sunlight in its ratio of red and blue region of light spectrum. Although most of the plant, "long-day" and "short-day" both can show growth in artificial light if it is mimicked to natural light to which plant is adapted to. In polar countries and in winter plants grow in greenhouses having artificial light.
- When we breathe in we inhale only Oxygen gas and when we breathe out we exhale Carbon-di-oxide gas only. It is at the level of lungs that oxygen gas is picked up by hemoglobin molecule in blood but when the nose inhales the air all its gases composition enter the lungs. Similarly at the level of lung carbon-di-oxide gas is released by hemoglobin into lungs and while exhaling along with released carbon-di-oxide gas all other gases are also released back to atmosphere through nose.
- There are harmful rays in environment during eclipse. In solar eclipse (full or partial) it is not harmful to go out but to see sun directly is always harmful even on a normal day without eclipse.

- Heavier objects like rock, stone fall faster towards earth than lighter object like feather and cotton etc. Actually all objects irrespective of their type reach the surface at same time when they free fall in vacuum (absence of air).
- The arrow of magnetic campus is North Pole of magnet. Actually the pointing arrow of magnetic campus is South Pole of the magnet and it points towards the geographical North Pole.
- The process of excretion means passing of urine and solid waste from body. Many times it is assumed by the learners that the process of making urine and waste is a single process done by the digestive system. But the real fact is that it is the kidneys which are responsible for the formation and release of urine and digestive system ends up in making solid waste product of body.

A teacher should regularly work upon these misconceptions. He/she should ask students to read between the lines in science lesson and frame questions which they feel can be made out of a respective text and raise the same question in classroom. It shall be a very ample opportunity for the teachers to grab the misconceptions going on inside the minds of students.

Students should be asked to solve problem in groups especially in laboratory making use of laboratory apparatus. More and more hands on experience should be provided to students.

A problem may be thrown to groups of students asking them to reach to the solution taking ideas from science textbooks, practical manuals and other encyclopedias from library resources. This enables them to understand the importance of group efforts in scientific enquiries and experimentation. This can be the first lesson of inculcating scientific temper for them.

Rote Learning vs. Concept Learning

The National Curriculum Framework (NCF) developed by National Council of Educational Research and Training (NCERT), New Delhi in 2005 recommended a paradigm shift from rote memory to learning by understanding and analysis. NCF urged that science should nurture curiosity and creativity particularly in relationship to the environment and science teaching should be placed in the context of children's environment to help them enter the world of work.

NCF (National Curriculum Framework) - 2005 came up with Constructive approach to teach concepts to the learners. In traditional approach Heuristic approach based on search based problem solving is employed to teach the learners about concepts. Knowledge is concept based. Role of experiments and empirical evidence is important

to gain the conceptual clarity. Fleury (1998) remarked, "Constructivism is a postmodern theory of knowledge with the potential to transform educational theory."

NCF-2005 is of the view that, "in the constructivist perspective, learning is a process of the construction of knowledge. Learners actively construct their own knowledge by connecting new ideas to existing ideas on the basis of materials/activities presented to them (experience). The structuring and restructuring of ideas are essential features as the learners' progress in learning. The collaborative learning provides room for negotiation of meaning, sharing of multiple views and changing the internal representation of the external reality. Construction indicates that each learner individually and socially constructs meaning as he/she learns. Constructing meaning is learning. The constructivist perspective provides strategies for promoting learning by all."

The basis of constructivism is concept development and understanding (Fosnot, 1996) and the major objective of science instruction in schools, especially at elementary level is conceptual knowledge, conceptual understanding, conceptual attainment and conceptual change. If a learner after knowing and understanding science has never challenged any pre-conceived notion by his argument using logic it reflects lack of scientific thinking. Scientific thinking demands evidence for belief. Actually one fails to question, argue or challenge because of a psychological imprinting that makes us to still accept certain beliefs blindly. We fear cross-questioning on certain matters which are related to our day to day living and we fail to apply scientific logic there. This failure to see logic in life is a direct result of failure of propagating scientific way of thinking inside the classroom. This has become a serious social concern which gives rise to many superstitions in the society, practiced, perpetuated and safely transferred from one generation to another.

NCF 2005 suggests that creativity should be kept in mind while framing science education curriculum. It states that children should learn to ask questions critically. Teachers have this huge responsibility of increasing critical thinking power in children. Also giving more emphasis on local bodies of knowledge already existing in children's surrounding has been highlighted by the framework.

Good science education is true to the child, true to life and true to science. (NCF-2005)

Why teachers fail to teach the concepts correctly?

Teachers often emphasize in making students memorizing the concepts. What they think is they cannot make students understand without memorizing which is a serious mistake. As the students reach the formal operational stage of learning the

sequence for conceptual attainments should be from Learning Skills, Understanding Concepts behind the skills and finally registering, reviewing, recalling and remembering through Memory. However, the point of caution is teachers should never promote exclusively the Memory level of learning in students without making them understand and apply the concepts by practically experiencing them. Memorizing Skill is a help for remembering concepts but not the ultimate practice rather hands-on experiences by the learners are more important in science learning.

Following are some points to be remembered while teaching science

- Only the person with good, sound concept is capable of giving good concept.
- Similarly, one must learn from best books. There are good, bad and excellent books. In the great books author (teacher) shares his or her ideas with us, saves a lot of time, energy and gives a good insight.
- Good Science teaching requires reasonably good comprehensions of language. There are words which are mistaken for wrong meaning.
- Good teacher takes pains to convey even average concepts.
- Actually words have power. Choice of word is important to convey correct meaning to the learner i.e. the inside meaning of the words.
- Making concept charts and maps to inculcate the right concepts to the students adds to the value of teaching.
- Today students are overloaded with Curriculum exercises and their preoccupations have stunted inquisitiveness within them. It is job of every teacher to kindle that desire to know. After all the more you know then you know that you know so less. The job is to keep knowing.
- Let the students ask questions to themselves. If they successfully learn to ask questions they have learnt to learn science.
- Teaching students how to solve problems. Problem solving can be taken up in two ways, finding solutions by Algorithmic approach (following a set of rules) or by tackling it by Curiosity approach by falling trapped into situation.
- Concepts are built on basics. Basic mathematical operations, language and science all should be nurtured and developed in learners in harmony.
- Often a teacher is unprepared to systematically present the chapter inside classroom. Instead he/she switch over from one topic to other, rambling from one topic to another in lack of strategy. This unsystematic approach leads to erroneous learning.
- Sometime use of too complex scientific explanations in terms of language, abstractness of concept etc. makes way to the emergence of misconceptions in the minds of children.

Learning Science is All about Getting the Concepts Right

- Many a time queries of students remain unanswered out of negligence of the teachers. Either the teachers do not know the exact answers or they feel the questions are not important to be answered.
- Teachers fail to explain a topic in a simple way as if science can never be explained in simplicity. They fail to present the appropriate examples in continuity for perfect explanation. Here it will be talent and credit of teacher to be able to present as many examples as possible.

Processes of Learning Science

The process of learning takes place at different levels, depending on prior experience of the learner, his intellectual ability and the presentation of materials. The learning process can be categorized in three levels viz. association, conceptualization and creative self-direction.

Association: All initial learning consists in the formation of associations, including Pavlov's conditioned learning as well as the operant conditioning of Skinner. Most of S-R learning comes under the rubric of association learning. Most of the knowledge and attitudes are learnt by association. This type of learning is comparatively easy to evaluate. This is based on Memory level of learning.

Conceptualization: Conceptualization is the process of grasping the commonalities or the relationships. This process requires a pre-requisite of association. Conceptualization is the process of abstracting the commonality in associations, meaning that the relevant relationship is grasped. Most of the Higher Order Learning (HOL) in the cognitive as well as affective domains takes place by conceptualization. This is based on Understanding level of learning.

Creative Self-Direction: This is the highest level of learning and under favourable conditions people are able to progress from association formation through a process of conceptualization, to a kind of learning characterizes the creative artist. The motive power comes from emotional or affective dimension of learning. When a student reached this level of learning, he can work independently on his own initiative. This is based on Reflective learning.

Science is more of a Verb than a Noun

Science is a subject, the knowledge and skill of which cannot be acquired only through telling or reading. It requires active experimentation, careful observation and demonstration of the scientific facts and principles. It means that what is taught in science can be properly learnt through direct experiences with the available and stimulated environment.

There is a saying that, "Necessity is the mother of invention and discovery." Throughout the ages man has been trying to gratify his needs and desires through the discovery of new facts and activities. This process of discovering out new ideas and phenomenon constitutes the body of science. In this process of discovery, man attempts to define science as a systematic body of knowledge.

Science is a culture free subject unlike other culturally loaded subjects like literature and social studies and hence Science can be taught best in stimulating environments that triggers responses contributing in development of the cognitive structures of the learners without the influence of environmental barriers, loads and hindrances. Therefore the psychological state of the mind of the learner is also vital statistic to decide for meaningful learning to take place. In Meaningful Science Learning (MSL) learners are equal participant in knowledge construction and in the process they verify the underlying hypothesis of theories many times giving it more validity. In this process they build up concepts and interlink concepts to get the clear picture perfect clarity about the underlying theory.

Curriculum overloading by Languages

Language is a powerful medium to transact information from the sender to the receiver. Language is in every subject. Knowledge of language is a pre requisite for understanding most of the other subjects. But Indian curriculum is overloaded with languages. Too much investment by students on language learning takes away enough from them to gain a firm conceptual clarity in learning science. Switching from one language to other for teaching science may create some conceptual confusions due to miscommunication and misinformation. The problem is that the mother language is not carried forward as a medium of science teaching at higher level i.e. secondary and higher secondary level. Imparting science concepts is very psychological but Regional Boards of Education (across Indian States and Union Territories) have been not fully successful in teaching Science either in mother language or English exclusively. Also the problem is far-far more prominent in classrooms with the texture of Multi-Lingualism. Surely, the mind of the child faces so many conflicts inside science classroom; spanning from language bars to gradual abstractions of concepts towards higher level of schooling. It is a very uninviting situation for learning to take place, if at all it finds its scope, it is never crystal clear. The child struggles with many learning difficulties often unnoticed and unidentified by the teachers.

Language competency is a part of verbal skill of communication. A teacher who values the science of meaningful communication always waits for feedback from the learners before proceeding further. Mere completion and coverage of prescribed curriculum is the false aim of science teaching. If a student fails to understand it is

failure of teacher and the communication process. In classroom the vertical or "top-down" approach "talks at" students rather than "talk with" them. The horizontal communication approach talks with students in a participatory mode involve all the students in the communication process. A teacher is a key person to decide for the kind of approach and only a responsible and motivating teacher is able to go with the later approach.

A shift in trend demands imparting knowledge about "Language of Science" and "History of Science" in Science classrooms which had been missing from traditional science teaching. Science comes with its own inheritance of a language, so unique that it has its own charm. Traditionally, it was imparted with science concepts wherein it continued to lose its significance. Neither the concepts were clearly imparted nor was the meaning of scientific terms made clear by ignorant teachers. The need of teaching "Language of Science" is gaining gravity because this language is a kind of universal language which can be taught from very beginning to students comfortable in any medium (language) of science learning.

A parallel co-existing modern thought is to teach students about the "History of Science". It is very detrimental aspect of science learning in arousing interest towards science subject. It is through history one can marvel the gifts of science by knowing about some life changing inventions and discoveries.

Final words

It is impossible for a mind to learn without mistakes. Mistakes are very psychological process and they lead to error which can be rectified. But misconceptions if continue to persist in learners' mind for a long period of time they become more rigid and continues to hinder further learning and learners fail to gain conceptual clarities. These misconceptions can be best identified by wrong answers of students. A good teacher is always vigilant to find misconceptions and its immediate rectification so that it does not continue to linger in the mind of learner.

Good science teaching is all about getting the concepts right. In the process learner has to pass the concept through all the essential levels of learning viz. Memory, Understanding and Reflective levels. The concept gets safely accommodated into the cognitive structure if the teacher tries hard to prevent the learner from getting any erroneous concepts by the virtue of learner's responses and actions. The analysis of response of students on paper and pencil tests and by interviewing them can provide clue to the problems they face in learning a particular concept. This is not a one-shot process; rather it is tried again and again by the two, teacher and the student, to reach out to an entity called 'Truth'.

And finally, when we are comfortable in handling science concepts then we are ready for Serendipity ……

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Level of Job Satisfaction among Deficit Secondary School Teachers in Mizoram

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Lallianzuali Fanai **

Abstract

Teachers play a crucial role in achieving any educational objectives. Disgruntled teachers who are not satisfied with their job cannot be committed and productive and would not be performing at the best of their capabilities. The quality and competencies of the teachers are the most important factors that influence the quality of education. Hence, nothing can be as important as providing teachers with the best professional preparation and creating satisfactory conditions of work. The present study focuses on the job satisfaction of deficit secondary school teachers. The sample of the study consists of 66 secondary school teachers who were randomly selected from the Deficit Schools. The investigator used Job Satisfaction Scale (JSS) prepared by Dr. Meera Dixit (Lucknow) for primary and secondary school teachers consisting of 52 questions. The study reveals that most of the teachers have extremely high satisfaction and high satisfaction in their job. The study also incorporates the level of satisfaction on intrinsic aspect of the job, salary, service conditions and promotional avenues, physical facilities, institutional plans and policies, satisfaction with authorities, satisfaction with social status and family welfare, rapport with students and relationship with co-worker of the deficit secondary school teachers.

Key words: *Job satisfaction, Secondary school teachers, Deficit secondary schools.*

Introduction:

The whole process of education is shaped and moulded by teachers who play a pivotal role in any education system. They have the potential to mould the minds of young children so that they become good human beings. They are the topmost persons

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in the professional pyramid as they mould the future generation. In the words of Humayun Kabir, "Teachers are literally arbiters of a nation's destiny. It may sound a truism, but it still needs to be stressed that the teacher is the key to any educational reconstruction." So, the satisfaction of teachers in their job is a primary requisite for any successful education system. If teachers get adequate job satisfaction they will be in a position to fulfill the educational objectives and national goals.

Job satisfaction is a widely accepted psychological aspect of effective functioning in any profession. Job satisfaction has been defined as a pleasurable emotional state resulting from the appraisal of one's job; and an effective reaction to one's job; and an attitude towards one's job. Job satisfaction is the favourable or unfavourable subjective feelings with which an employee views their work. It can also be defined as an effective or emotional response towards various facets of one's job (Kreitner and Kinieki (1998)). It expresses the extent of match between employees' expectation of the job and the reward that the job provides.

Job satisfaction is a complex phenomena involving various personal, institutional and social aspect. It is the result of various factor of job. Singh and Sharma (cited in Agarwal, 2012) listed the following factors affecting job satisfaction:

1. Job intrinsic factors.
   a) Job concrete factors such as excursions, place of posting, working conditions.
   b) Job abstracts factors such as cooperation, democratic functioning.
2. Job extrinsic factors.
   a) Psychological factors such as intelligence, social circles.
   b) Economic factor such as salary, service conditions and promotion.
   c) Physical factors such as physical facilities, institutional plan and policies.
   d) Sociological factor such as satisfaction with authorities, social status and family welfare, rapport with students and relationship with co-worker.

Teacher job satisfaction is an expression of areas of job which satisfy the needs of a teacher and increase their interest, involvement in the work, improve their attitude towards their job and disagree with the conditions which are annoying and humiliating.

Rationale of the Study

Teachers' job satisfaction is important for school organization and quality improvement. A teacher having good qualification and trainings may or may not have

positive attitude towards teaching profession. The phrase 'satisfaction of teacher' refers to how contended or appease the teachers feel about their profession and the circumstances surrounding their work. Students' behaviors in class atmosphere are mostly affected by the teachers' remarks and ideas, their methods of approach to the students or their tendency to control class. So it very important those teachers must be satisfied with their job. Because a well satisfied teacher can give his best to his students (Sharma, 2012).

Deficit secondary schools are those schools which receive Grand-in-Aid from the consolidated fund under Mizoram Aided School (non-recurring and recurring Grant-in-Aid) from the Government of India and their teachers enjoy the full pay and allowance as that of the Government teachers. The present study has been taken up since significant exploratory studies had not been done emphasizing teachers' job satisfaction in deficit schools in Mizoram.

Statement of the Problem

Keeping in view the above rationale, the study has been entitled as 'Study of Job Satisfaction of the Deficit Secondary School in Mizoram."

Objectives of the Study:

The objectives for the study were –

1. To find out the different levels of job satisfaction among deficit secondary school teachers.
2. To study the level of satisfaction on the intrinsic aspect of the job, salary, service conditions and promotional avenues, physical facilities, institutional plans and policies, satisfaction with authorities, satisfaction with social status and family welfare, rapport with students and relationship with co-workers among the teachers of deficit secondary school teachers.

Hypothesis of the Study

The following hypotheses were formulated from the given objectives for the study –

1. There exist different levels of job satisfaction among deficit secondary school teachers in Mizoram.
2. There exist different levels of satisfaction on the intrinsic aspect of the job, salary, service conditions and promotional avenues, physical facilities,

institutional plans and policies, satisfaction with authorities, satisfaction with social status and family welfare, rapport with students and relationship with co-worker among the teachers of deficit secondary school teachers.

Research Design

Descriptive type of research was used for this study.

Population and Sample:

The population for the study consisted of all the teachers of deficit secondary schools within Mizoram. There are six deficit schools out of which five shools are in Aizawl District and one school in Lunglei. The total number of teachers in the six deficit schools is 96. The sample consists of 66 secondary school teachers randomly selected from the deficit school teachers within Aizawl District which amounts to 68.75% of the total population.

Tools Used:

For collection of data, the investigator used standardized Job Satisfaction Scale *(JSS)* prepared by Dr. Meera Dixit (Lucknow) for primary and secondary school teachers consisting of 52 questions published by National Psychological Corporation, 4/230, Kacheri Ghat, Agra.

Procedure of Data Collection:

For the purpose of collecting data, good rapport was established with the deficit secondary school teachers. The data were collected by personally administering the selected tool for the present study.

Procedure for Data Analysis:

For the purpose of analysis of the collected data, the responses obtained from the subjects were scored following the standard procedure. Each teacher was assigned a serial number. The scores of job satisfaction scale were entered following the column designed for the selected variable, i.e., intrinsic aspect of the job, salary, service conditions and promotional avenues, physical facilities, institutional plans and policies, satisfaction with authorities, satisfaction with social status and family welfare, rapport with students and relationship with co-worker. For analyzing the data, the investigator used percentage to describe the level of job satisfaction among the teachers and level of satisfaction on the different factors of job satisfaction.

Analysis and Interpretation of Data

Analysis of the present study is done in accordance with the objectives of the study.

Objective no 1: *To find out the different levels of job satisfaction among deficit secondary school teachers.*

The sample teachers were categorized in accordance with the norms provided in the manual of the scale and is presented in the following table no. 1.

Table 1
Job Satisfaction among Deficit Secondary School Teachers.

Score	Number	Percentage	Degree of Satisfaction
Above 204	20	30.30%	Extremely High Satisfaction
190 – 203	27	40.91%	High Satisfaction
178 – 189	11	16.67%	Above Average Satisfaction
161 – 177	5	7.58%	Average/Moderate Satisfaction
148 – 160	3	4.55%	Below Average Satisfaction
135 – 147	0	0	Dissatisfaction
Below 135	0	0	Extremely Dissatisfaction

The above table reveals that out of 66 teachers of deficit secondary school teachers, 30.30% were extremely satisfied with their job, 40.91% of them were found to have high satisfaction in their job, 16.67% were identified as above average satisfaction in their profession, 7.58% have an average or moderate satisfaction in their job and 4.55% were found to have below average satisfaction in their job. There are no teachers in Deficit Secondary School teachers who were completely dissatisfied and extremely dissatisfied in their job.

Objective no. 2 - *To study the level of satisfaction on the intrinsic aspect of the job, salary, service conditions and promotional avenues, physical facilities, institutional plans and policies, satisfaction with authorities, satisfaction with social status and family welfare, rapport with students and relationship with co-worker among the teachers of Deficit Secondary School teachers.*

The following table no.2 shows the different level of satisfaction on the factors of job satisfaction, i.e., the intrinsic aspect of the job, salary, service conditions and promotional avenues, physical facilities, institutional plans and policies, satisfaction with authorities, satisfaction with social status and family welfare, rapport with students and relationship with co-worker among the teachers of deficit secondary school teachers.

Table 2
Level of Satisfaction on the Factors of Job Satisfaction (N=66)

	Highly satisfied		Satisfied		Satisfactory Satisfied		Dissatisfied		Extremely dissatisfied	
	No.	%	No.	%	No.	%	No.	%	No.	%
Intrinsic	14	21.2	49	74.2	3	4.5	0	0	0	0
Salary, service conditions and promotional avenues	6	9.1	45	68.2	15	22.7	0	0	0	0
Physical facilities	26	39.4	34	51.5	5	7.6	1	1.5	0	0
Institutional plans and policies	9	13.6	54	81.8	3	4.5	0	0	0	0
Satisfaction with authorities	11	16.7	48	72.7	7	10.6	0	0	0	0
Social status and family welfare	24	36.4	39	59.1	3	4.5	0	0	0	0
Rapport with students	20	30.3	45	68.2	1	1.5	0	0	0	0
Relationship with co-worker	24	36.4	49	74.2	3	4.5	0	0	0	0

The perusal of the above table no. 2 reveals that there are 21.2% of students who are highly satisfied, 74.2% are satisfied and 4.5% have satisfactory satisfaction in the intrinsic aspect of the job. Table no. 2 also revealed that 9.1% of the teachers were highly satisfied, 68.2% were satisfied and 22.7% were satisfactorily satisfied in their salary, service condition and promotional avenues. There were no teachers who were dissatisfied on the intrinsic aspect of the job, salary, service conditions and promotional avenues.

Table no. 2 shows that among the deficit school teachers 39.4% were highly satisfied, 51.5 % were satisfied and 7.6% were with satisfactory satisfaction with the physical facilities of their school. There were 1.5% teachers who were dissatisfied with the physical facilities.

From the table it is observed that level of satisfaction on institutional plan and policies among the deficit secondary school teachers were: 13.6% highly satisfied, 81.8% satisfied and 4.5% with satisfactory satisfaction. No teachers were found to be dissatisfied with the institutional plan and policies.

Table no. 2 also illustrates that 16.7% were highly satisfied, 72.7% were satisfied and 10.6% were satisfactorily satisfied with their school authorities. The above table also revealed that 36.4% were highly satisfied, 59.1% were satisfied and 4.5% were satisfactorily satisfied with their social status and family welfare. There were no teachers who were dissatisfied with their school authorities and social status and family welfare.

The above table no.2 also revealed that 30.3% were highly satisfied, 68.2% were satisfied and 1.5% were satisfactorily satisfied on their level of satisfaction on rapport with students. It is observed that 36.4% were highly satisfied, 74.2% were satisfied and 4.5% were satisfactorily satisfied on their relationship with co-worker. No teacher was dissatisfied on their rapport with students and relationship with co-workers.

Conclusion and Discussion

Job satisfaction is either a global feeling about the job or a related constellation of attitudes about various aspects of facets of the job. The facet approach is used to find out which parts of the job produce satisfaction or dissatisfaction. Robbins and others (1994) indicated that the more important factors conducive to job satisfaction include mentally challenging work, equitable rewards, supportive working conditions and supportive colleagues. For most employees work also fills the need for social interaction and so, friendly supportive employees also lead to increased job satisfaction (Drago and others, 1992).

In the present study investigating on the level of job satisfaction among the teachers working under deficit management system, it was clearly revealed that most of the teachers under the deficit management system had some sort of satisfaction in their job. Most of the teachers were highly satisfied with their job, less than 15% have average satisfaction while only 4.5% have below average satisfaction in their job. This may account for the fact that all the deficit schools are mission schools. These schools have good reputation with good infrastructure which gives the teaching job under the particular management system high prestige. The teachers also received the same remuneration as that of the government school teachers.

The study also incorporates the satisfaction of teachers on the different factors of job satisfaction common in most of the Indian schools. These factors include the intrinsic aspect of the job, salary, service conditions and promotional avenues, physical facilities, institutional plans and policies, satisfaction with authorities, satisfaction with social status and family welfare, rapport with students and relationship with co-worker. Majority of the teachers were satisfied on all the factors of job satisfaction. On the intrinsic factor of the job, due to the reputation and the prestige of the job, the satisfaction was fairly high with only 4.5% satisfactory satisfaction. On salary, service conditions and promotional avenues, there were 22.7% who had satisfactory satisfaction which may be due to the chances of promotion. All the schools are not in the same pace in the physical facilities which results in 1.5% of teachers dissatisfied in the physical facilities.

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"If you don't value your time, neither will others. Stop giving away your time and talents. Value what you know & start charging for it."

- Kim Garst

Occupational Self Efficacy of Mizoram University Teachers

Lalhriatpuii *

Abstract

A descriptive cum survey method was used to determine the occupational self efficacy of Mizoram University Teachers. A sample of 90 teachers (45 Male and 45 Female) from School of Engineering & Technology, School of Life Sciences and School of Education & Humanities of Mizoram University was selected randomly. The major finding of the study is that there is no significant difference between male and female teachers of Mizoram University in their Occupational Self Efficacy taken as a whole. However, there are significant gender differences among teachers of School of Engineering & Technology and School of Education & Humanities in their Occupational Self-Efficacy.

Key words: *Occupational self efficacy, Mizoram University teachers.*

Introduction:

Occupational self efficacy should not be confused with general self efficacy beliefs, being a domain specific self efficacy**.** Self-efficacy is the extent or strength of one's belief in one's own ability to complete tasks and reach goals. Psychologists have studied self-efficacy from several perspectives, noting various paths in the development of self-efficacy; the dynamics of self-efficacy, and lack thereof, in many different settings; interactions between self-efficacy and self-concept; and habits of attribution that contributes to, or detract from, self-efficacy. This can be seen as the ability to persist and a person's ability to succeed with a task. Self-efficacy directly relates to how long someone will stick to a workout regimen or a diet. High and low self-efficacy determines whether or not someone will choose to take on a challenging task or "write it off" as impossible.

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Self-efficacy affects every area of human endeavour. By determining the beliefs, a person holds his or her power to affect situations; it strongly influences both the power a person actually has to face challenges competently and the choices a person is most likely to make. These effects are particularly apparent, and compelling, with regards to behaviours affecting health.

Background:

Potent, affective, episodic and evaluative nature of beliefs makes them a filter through which new phenomena are interpreted. Our knowledge, skills and outcomes may have created our self-efficacy beliefs but the filtering effect ultimately screens, redefines, distorts or reshapes subsequent efforts and new information. Individuals create and develop self-perceptions of capability that become instrumental to the goals they pursue and to the control they are able to exercise over the environment. Higher self-efficacy means higher persistence. People with high self-efficacy attribute failure to effort and with low self-efficacy attribute to ability. Collins (1982) found sense of efficacy shapes causal thinking. Initial success increases and failure lowers self-efficacy beliefs but later filter begins to work. "People with a strong sense of competence approach difficult tasks and challenges to be mastered rather than as threats to be avoided, have greater intrinsic interests and deep engrossment in activities, set themselves challenging goals and maintain strong commitment to them, heighten and sustain their effort in the face of failure and setback and attribute failure to insufficient efforts or deficient knowledge and skills which are acquirable.

Self-efficacy beliefs are correlated with other self-beliefs and with academic performances (Pajares, 1996). These perceptions help the people to determine what to do with the skills they have. Self-efficacy beliefs also determine how well knowledge and skills are acquired in the first place. Self-efficacy affects performance and self-regulated learning variables. Schunk (1991) suggested that variables such as perceived control, outcome expectation, and perceived value of outcome, attribution goals and self-concept may provide a type of cue used by individuals to assess their self-efficacy beliefs.

Beliefs differ in level, generality and strength. Self-efficacy is a powerful motivation construct that can predict self-belief and performance. Locke (1986) found that higher self-efficacy affected the specificity of self-set goals which may indicate greater commitment and more reality based intention formation. Bandura (1977) stated that perceived self-inefficacies lead people to shun enriching environments and activities, retard development of potentialities and shield negative prospects from corrective actions. Self-perceptions of competence are considered integral components of an individual's self-concept and self-efficacy beliefs are often viewed as requisite judgements necessary for self-concept.

Rosenberg and Kapland (1982) wrote that self-concept precepts include judgements of self-esteem, stability and self-crystallization. Effects on self-efficacy beliefs influence motivational and self-regulatory process in several ways. They influence the choices people make and the courses of the action they pursue. Most people engage in tasks in which they feel competent and confident and avoid those in which they do not. James (1985) wrote that experience is essentially what individual chose to attend. Self-efficacy belief is strong determinants and predictors of the level of accomplishments that individuals finally attain. For these reasons Bandura (1997) has made the strong claim that the beliefs of personal efficacy constitute the key factor of human agency.

Objectives of the Study:

The objectives of the present study are:-

1. To find out the occupational self-efficacy among teachers of Mizoram University.
2. To compare the occupational self-efficacy between male and female Teachers of Mizoram University.
3. To compare the occupational self-efficacy between male and female teachers under School of Engineering & Technology, Mizoram University.
4. To compare the occupational self-efficacy between male and female teachers under School of Life Sciences, Mizoram University.
5. To compare the occupational self-efficacy between male and female teachers under School of Education & Humanities, Mizoram University.

Hypotheses of the Study:

Hypothesis-I : There is no significant gender difference among teachers of Mizoram University in their Occupational Self-efficacy

Hypothesis-II : There is no significant gender difference between teachers under School of Engineering & Technology in their Occupational Self-efficacy.

Hypothesis-III : There is no significant gender difference between teachers under School of Life Sciences in their Occupational Self-efficacy.

Hypothesis-IV : There is no significant gender difference between teachers under School of Education & Humanities in their Occupational Self-efficacy.

Methodology:

Considering the nature of the problem under investigation and the nature of the data for the study, descriptive cum survey method was used for data collection.

Sample of the Study

Sample was drawn from population of Mizoram University teachers that was 270 with 100 males and 170 females. In the first stage, sample teachers were taken from three Schools namely, School of Engineering & Technology, School of Life Sciences and School of Education & Humanities. The investigator selected 90 teachers (45 male and 45 female) from these three Schools of Mizoram University by following random sampling method..

Tools Used

'Occupational Self-Efficacy Scale' developed by Sajayot Pethe, Sushama Choudari, and Upinder Dhar (1999) was used for the study. This is a 19 item scale comprising of 6 dimensions such as Confidence, Command, Adaptability, Personal effectiveness, Positive Attitude, and Individuality. This is a five point Likert scale with a response range varying from 1 to 5.

For scoring, 5 point is to be provided for response of 'Strongly Agree', 4 point is to be provided for response of 'Agree', 3 point is to be provided for response of 'Neutral', 2 point is to be provided for a response of 'Disagree' and 1 point is to be provided for a response of 'Strongly Disagree'. The reliability of coefficient of the scale was found to be .98.

Procedure

Both qualitative and quantitative techniques were used for the study. Statistical techniques of t-test were employed for the study.

Analysis and Interpretation of Data:

Gender and Occupational Self Efficacy: Paired Means Comparison with't' Test

Table 1: Mean scores of occupational self-efficacy among teachers of Mizoram University

Sl. No.	Domains	Male	Female
1	Confidence – I	14.02	14.78
2	Command – II	11.29	11.53
3	Adaptability – III	11.84	11.6
4	Personal Effectiveness -IV	15.84	16.84
5	Positive Attitude – V	10.73	10.29
6	Individuality – VI	7 .07	7.64
Total Occupational Self Efficacy		**70.79**	**72.68**

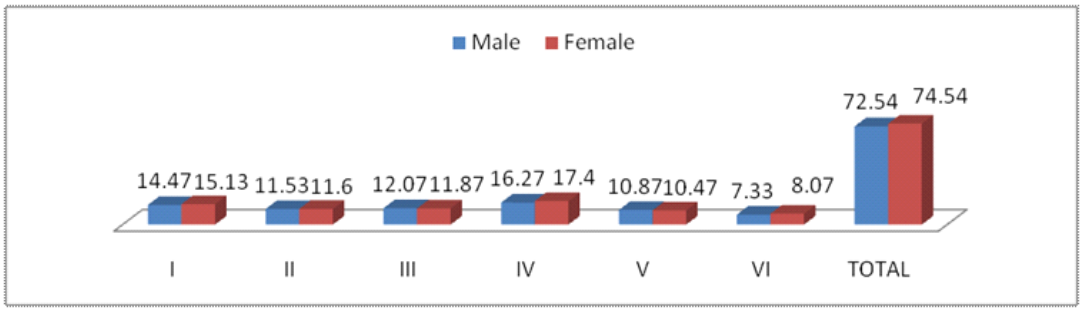
From the above table 1, we can see the distribution of total scores of Occupational Self Efficacy among different domains and simple comparisons without any significant tests given to describe the distribution of occupational self-efficacy scores between male and female teachers of Mizoram University. The six domains of occupational self-efficacy measured are Confidence, Command, Adaptability, Personal effectiveness, Positive Attitude, and Individuality. The Male teachers in Mizoram University scored highest in domain IV - Personal Effectiveness (15.84) and lowest score in domain VI-Individuality (7.07). Similarly, the Female teachers also scored highest in domain IV-Personal Effectiveness (16.84), and lowest score in domain VI-Individuality (7.64). Regarding the total occupational self-efficacy of the Mizoram University teachers, female teachers scored (72.68) which is higher than the Male teachers (70.79).

Table 2: Mean scores of occupational self-efficacy of male and female teachers under School of Engineering & Technology (SET), Mizoram University

S. No.	Domains	Male	Female
1	Confidence – I	13.67	14.67
2	Command – II	10.73	12.2
3	Adaptability – III	11.07	11.47
4	Personal Effectiveness -IV	15.13	17.33
5	Positive Attitude – V	10.6	10.2
6	Individuality – VI	6.67	8.2
Total Occupational Self Efficacy		**67.87**	**74.07**

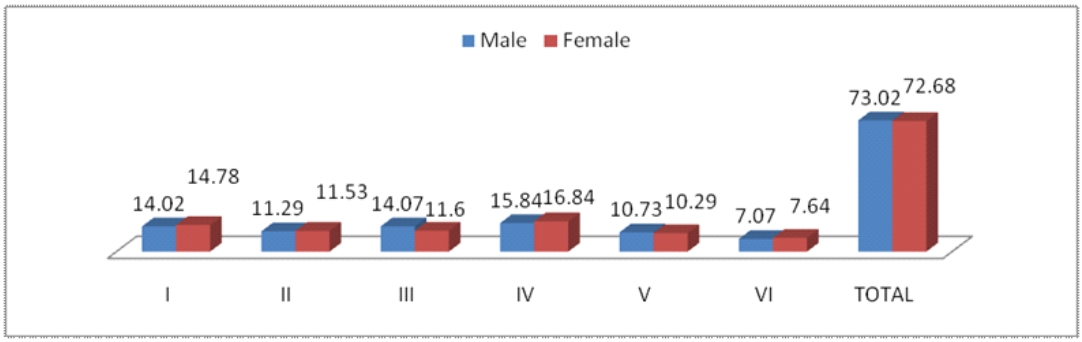
The above table 2 shows the distribution of Occupational Self Efficacy scores among different categories and simple comparisons without any significant tests given to describe the distribution of occupational self-efficacy scores between male and female teachers under School of Engineering & Technology. Male teachers scored highest in domain IV- Personal Effectiveness (15.13) and score lowest in domain VI- Individuality (6.67). Likewise, female teachers also scored highest in domain IV-Personal Effectiveness (17.33), and scored very low in domain VI-Individuality (8.20). And for the total occupational self-efficacy of School of Engineering & technology teachers, female teachers scored 74.07 which is much higher than the scores of male teachers, i.e., 67.87.

Figure 1: Mean scores of male and female teachers of School of Life Sciences in their Occupational Self Efficacy



From the above figure, we find that male teachers under SLS of Mizoram University have the highest scores in IV- Personal Effectiveness (16.27) and lowest scores in domain VI- Individuality (7.33). Similarly, female teachers scored highest in IV- Personal Effectiveness (17.4) and scored the lowest in domain VI- Individuality (8.07). Regarding the total occupational self-efficacy of teachers under SLS, female teachers scored 74.54 which is higher than that of the male teachers i.e. 72.54.

Figure 2:Mean scores of male and female teachers of School of Education & Humanities in their Occupational Self Efficacy



The above figure reveals that male teachers under SEH scored highest in domain IV- personal effectiveness (15.84) and scored the lowest in domain VI-Individuality (7.07). Similarly, female teachers of the same School scored highest in domain IV- Personal Effectiveness (16.84), and scored the lowest in domain VI- Individuality (7.64). The total occupational self-efficacy of male teachers under SEH is 73.02 which is higher than that of the female teachers. i.e., 72.68.

Hypothesis-I : There is no significant difference between male and female teachers of Mizoram University in their occupational self-efficacy

A comparison of the total scores among Mizoram University teachers was made to find out the gender difference

Table No. 3: Comparison of all male and all female Teacher respondents

Category	Number	Mean	Standard Deviation	t- value
Male teachers	45	70.79	5.67	1.75(NS)
Female teachers	45	72.68	4.6	

NS- Not Significant

**Significant at 0.01 level*

*** Significant at 0.05 level*

From table no. 3, it can be clearly seen that there is no significant difference in the mean scores of both the male and female teachers of Mizoram University. The standard deviation indicates that the divergence in scores is more in male than in female. As the computed critical ratio value is 1.75 which is less than the table value, it can be said that there is no significant difference in the occupational self-efficacy of male and female university teachers. Therefore null hypothesis is accepted.

Hypothesis-II: There is no significant difference in occupational self-efficacy between male and female teachers under SET.

A comparison of the occupational self-efficacy scores of Engineering & Technology teachers was made to find out the gender difference.

Table No. 4: Comparison between male and female teachers under School of Engineering & Technology (SET) in their occupational self-efficacy

Category	Number	Mean	Standard Deviation	t-value
Engineering Male	15	67.87	5.61	4.36**
Engineering Female	15	74.07	1.53	

NS- Not Significant

**Significant at 0.01 level*

*** Significant at 0.05 level*

From table no. 4, it can be seen that there is a significant difference at 0.05 level between male and female teachers in SET in their occupational self-efficacy. Female teachers have higher occupational self efficacy than male teachers. The standard deviation indicates that the divergence in scores is more in male than in female. As the computed critical ratio value is 4.36 which is more than the table value, it can be said that there is a significant difference in the occupational self-efficacy of engineering & technology male and female teachers. Therefore, null hypothesis is rejected.

Hypothesis-III: There is no significant difference in occupational self-efficacy between male and female teachers under School of Life Science (SLS) .

A comparison of male and female teachers in SLS was made to find out the difference in their occupational self-efficacy.

Table No. 5: Comparison between male and female teachers under School of Life Sciences (SLS) in their occupational self efficacy

Category	Number	Mean	Standard Deviation	t-value
Life Sciences Male	15	72.54	4.15	1.11(NS)
Life Science Female	15	74.54	3.87	

NS- Not Significant

**Significant at 0.01 level*

*** Significant at 0.05 level*

The above table 5, reveals that there is no significant difference in the mean scores of both the male and female teachers under school of life sciences. The standard deviation indicates that the divergence in scores is more in male than in female. As the computed critical ratio value is 1.11 which is less than the table value, it can be said that there is no significant difference in the occupational self-efficacy of male and female teachers. Therefore null hypothesis is accepted.

Hypothesis-IV: There is no significant gender difference between teachers under School of Education & Humanities (SEH) in their Occupational Self-efficacy.

A comparison of the occupational self-efficacy scores of Education and Humanities teachers was made to find out the gender difference.

Table No. 6: Comparison between male and female teachers under School of Education & Humanities (SEH) in their occupational self efficacy

Category	Number	Mean	Standard Deviation	t- value
Humanities Male	15	73.02	6.19	4.46**
Humanities Female	15	72.68	5.7	

NS- Not Significant

**Significant at 0.01 level*

*** Significant at 0.05 level*

From table 6, it can be seen that there is a significant difference at 0.05 level between male and female teachers of School of Education and Humanities in their occupational self-efficacy.

The standard deviation indicates that the divergence in scores is more in male than in female. As the computed critical ratio value is 4.46 which is more than the table value, it can be said that there is a significant difference in the occupational self-efficacy of male and female teachers. Since the mean of the male teachers is higher, this indicates that male teachers are higher in their occupational self efficacy than the female teachers under School of Education and Humanities. Therefore null hypothesis is rejected.

Conclusions:

This research finds out the following factors that are affecting the occupational self-efficacy of Mizoram University teachers such as Confidence, Command, Adaptability, Personal Effectiveness, Positive Attitude and Individuality.

The two domains viz, 'Personal Effectiveness-IV' and 'Individuality-VI' were the most important factors in determining the occupational self efficacy of Mizoram University Teachers. The study further concluded that female engineering teachers scored higher in their occupational self-efficacy as compared to their male counterparts. At the same time, the male teachers under School of Education and Humanities possessed higher occupational self efficacy as compared to female teachers under the same School. A substantial body of evidence verifies that perceived self - efficacy operates as a common mechanism through which changes are achieved by diverse modes of influence, across markedly diverse spheres of functioning, with heterogeneous populations, and under differing life conditions.

The present study also highlights the importance of occupational self efficacy and thus brings significant contributions to the existing dearth of academic literature.

This leads to the question of how to create a training context for enhancing occupational self-efficacy among the academicians.

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Attitude towards Mathematics among Higher Secondary School Students in Aizawl City

Mikael L. Chuaungo *

Abstract

tudents' attitude towards mathematics has been a factor that is known to influence students' achievement in mathematics. Students of Mizoram in general have shown weak performance in Mathematics consistently. The low scores in Mathematics lower the overall percentage of the students in examinations, which reduces their chances of getting admission in prestigious institutions outside of Mizoram. Several pressure groups, ranging from politicians to parents, have lobbied for a change in the curriculum to make Mathematics easier or made optional in certain stages of secondary school. Before implementing a change of such nature, one needs to understand the various factors that affect performance in mathematics, if gender is an issue or if there is a lack of positive attitude towards mathematics. The present study was conducted to find out the attitude towards mathematics among higher secondary school students in Aizawl City and to find out if there was gender difference among science and arts students. Attitude towards Mathematic Scale (ATMS) developed by Thurston and Chave was administered to 100 students. The results show that the students having low attitude towards mathematics are more in number compared to ones having high attitude and the choice of subjects has little to do with their attitude towards mathematics.

Key words: *Attitude, Mathematics, Higher secondary school students, Gender difference.*

Introduction:

Mathematics in the real sense is a science of space and quantity that helps in solving the problems of life needing numeration and calculation. It provides opportunities for the intellectual gymnastic of the man's inherent powers. Teaching of Mathematics essentially helps the students in acquiring essential mathematics

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knowledge, skills, interests and attitudes. And it is necessary for and helpful in the realization of the practical or utilitarian value, disciplinary value and cultural value. Mathematics education trains students to make and use measurements and includes the study of computer programming, algebra, statistics, geometry and calculus.

Attitude is a mental set or disposition, readiness to respond and the psychological basis of attitudes, their permanence, their learned nature and their evaluative character. It includes object things, peoples, places, ideas or situations. Attitudes are not just passive results of past experiences; instead they impel behavior and guide its form and manner.

The components of attitudes are:

i) A cognitive component (opinion information or strength of belief or disbelief.

ii) An affective component (emotional component of like (or) dislike).

iii) An action (co nature behavioral component of habit or readiness to respond).

Eshun, (2004) defines an attitude towards mathematics as "a disposition towards an aspect of mathematics that has been acquired by an individual through his or her beliefs and experiences but which could be changed." When emphasizing the importance of individual experiences, the contexts where students interact with others and with mathematics become important focal points. Fraser and Kahle, (2007) have also highlighted this aspect in research which shows that learning environments at home, at school, and within the peer group accounted for a significant amount of variance in student attitudes and, furthermore, that class ethos had a significant impact on the scores achieved by students for these attitudes.

In addition, Mohamed and Waheed, (2011) when reviewing literature identified three groups of factors that play a vital role in influencing student attitudes:

1) Factors associated with the students themselves (e.g., mathematical achievement, anxiety, self-efficacy and self-concept, motivation, and experiences at school);

2) Factors associated with the school, teacher, and teaching (e.g., teaching materials, classroom management, teacher knowledge, attitudes towards math, guidance, beliefs);

3) Factors from the home environment and society (e.g., educational background, parental expectations).

Attitudes can be seen as more or less positive. A positive attitude towards mathematics reflects a positive emotional disposition in relation to the subject and, in a similar way, a negative attitude towards mathematics relates to a negative emotional disposition. These emotional dispositions have an impact on an individual's behavior,

as one is likely to achieve better in a subject that one enjoys, has confidence in or finds useful. For this reason positive attitudes towards mathematics are desirable since they may influence one's willingness to learn and also the benefits one can derive from mathematics instruction.

Need for the Study:

Scafidi and Bui, (2010) conducted a study on gender similarities in mathematics problems from middle school through high school in 10 US states in 2010. Mathematics is often considered to be a domain in which boys are higher achievers, both in terms of attitudes and self-concept. Contrary to this, findings show that math school achievement and grades do not differ significantly between boys and girls. This similarity in performance between males and females is clear in the meta-analysis conducted by Lindberg et.al., (2010) with data from 242 studies representing 1.286.350 people, indicating no gender differences and nearly equal male and female variances.

There are, however, noticeable differences in the beliefs held by boys and girls. Research conducted by Skaalvik and Skaalvik, (2004) in Norway has consistently shown that girls have lower math self-concept than boys. Results concerning gender differences in attitudes are less consistent than those in self-concept. Some studies conducted by Ma and Kishor, (1997) reported significant differences when we compare girls and boys attitudes towards mathematics. Nevertheless there are a number of studies where these differences are not identified, as in the case of a study conducted by Georgiou et.al., (2007) on students in Cyprus.

In India, students of Mizoram have shown weak performance in Mathematics consistently. The low scores in Mathematics lower the overall percentage of the students in exams, which reduces their chances of getting admission in prestigious institutions outside of Mizoram. Several pressure groups, ranging from politicians to parents, have lobbied for a change in the curriculum to make Mathematics easier or made optional in certain stages of secondary school. Before implementing a change of such nature, one needs to understand the various factors that affect performance in mathematics, if gender is an issue or if there a lack of positive attitude towards mathematics.

Statement of the Problem:

The problem of the present study has been stated as "*Attitude towards Mathematics among Higher Secondary School Students in Aizawl City*"

Objectives of the Study:

i) To find out the attitude towards mathematics among higher secondary schools students in Aizawl City

ii) To find out the difference in the attitude towards mathematics among higher secondary school students in Aizawl City with respect to their gender

iii) To find out the difference in the attitude towards mathematics among science students of higher secondary schools in Aizawl City with respect to their gender

iv) To find out the difference in the attitude towards mathematics among Arts students of higher secondary schools in Aizawl City with respect to their gender

v) To find out the difference in the attitude towards mathematics among male students of higher secondary schools in Aizawl City with respect to their stream of study

vi) To find out the difference in the attitude towards mathematics among female students of higher secondary schools in Aizawl City with respect to their stream of study

Hypotheses of the Study:

i) There is no significant difference in the attitude towards mathematics among higher secondary school students in Aizawl City due to difference in their gender.

ii) There is no significant difference in the attitude towards mathematics among science students of higher secondary schools in Aizawl City due to difference in their gender

iii) There is no significant difference in the attitude towards mathematics among Arts students of higher secondary schools in Aizawl City due to difference in their gender.

iv) There is no significant difference in the attitude towards mathematics among male students of higher secondary schools in Aizawl City due to difference in their stream of study

v) There is no significant difference in the attitude towards mathematics among female students of higher secondary schools in Aizawl City due to difference in their stream of study

Methodology of the Study:

Descriptive and quantitative research methods were used for the present study. Population of the present study comprised of all higher secondary school students in Aizawl City. Random sampling technique was applied for selection of the sample. The sample was composed of 100 students comprising of 25 male and 25 female students of higher secondary schools in Aizawl City enrolled in arts stream and 25 male and 25 female students of higher secondary schools in Aizawl City enrolled in science stream.

The tool used for the present study was "Attitude towards Mathematic Scale (ATMS)" developed by Thurston and Chave.

A systematic procedure was followed to collect the necessary data. For this purpose, 'Attitude towards Mathematics Scale' was administered to the sample students. Necessary clarifications were made when the respondents were not clear and did not understand the questions properly. Any expression of doubt and difficulty was also taken care by the investigator.

When the administration of the test was completed, the investigator collected the responses. Scoring was done based on scoring key given in the test manual and the scores were then tabulated.

Analysis and Interpretation of Data:

The responses obtained from the subjects were scored following the standard scoring procedures. The scores were classified, tabulated and analyzed. The analysis of the data was carried out with the help of standard statistical techniques, keeping in view the objectives of the study, the findings were meaningfully interpreted. The findings of the study are presented as follows:

Objective No.1: To find out the attitude towards mathematics among higher secondary schools students in Aizawl City

In order to find out the attitudes of the students towards mathematics, ATMS developed by Thurstone and Chave (1929) was administered to all respondents. After this, their scores were tabulated and classified in accordance with the norm given in the manual. The scores of the students which fall below the 25th percentile were taken as low attitude and the scores above the 75th percentile were taken as high attitude.

Table - 1
Classification of Students with respect to their attitude towards Mathematics

Sample	*N*	*Low Attitude*		*Average Attitude*		*High Attitude*	
All	100	**(x_{L169})**	**28**	**(x_{m174})**	**50**	**($x_{H\ 181}$)**	**22**
Boys	50	**($x_{L\ 171}$)**	**11**	**($x_{m\ 174.5}$)**	**27**	**($x_{H\ 182.25}$)**	**12**
Girls	50	**($x_{L\ 166}$)**	**12**	**($x_{m\ 172}$)**	**28**	**($x_{H\ 181}$)**	**10**
Science Boys	25	**($x_{XL\ 174.5}$)**	**6**	**(x_{m179})**	**13**	**(x_{H187})**	**6**
Science Girls	25	**($x_{L\ 173.5}$)**	**6**	**($x_{m\ 179}$)**	**14**	**($x_{H\ 182.5}$)**	**5**
Arts Boys	25	**($x_{L\ 166}$)**	**6**	**($x_{m\ 172}$)**	**13**	**($x_{H\ 174.5}$)**	**6**
Arts Girls	25	**($x_{L\ 163}$)**	**6**	**($x_{m\ 166}$)**	**14**	**($x_{H\ 170.5}$)**	**5**

The **first quartile**, or **25th percentile** $\mathbf{x_L}$ (also written as $\mathbf{Q_1}$), is the number for which 25% of values in the data set are smaller than x_L.

The **second quartile** or **50th percentile**, $\mathbf{x_m}$ (also written as $\mathbf{Q_2}$) is also known as the median. It represents the value for which 50% of observations are lower and 50% are higher.

The **third quartile** or **75th percentile**, $\mathbf{x_H}$ ($\mathbf{Q_3}$) is the value such that 75% of the observations are more than x_H

- The table above shows that out of 100 respondents, 28 students had low attitude, 45 students had average attitude and 22 students had high attitude towards Mathematics. Majority lies in the average group, while the number of students with low attitudes is considerably higher than the ones with high attitude.
- Among the boys, 11 had low, 27 had average and 12 had high attitude towards Mathematics. Boys with high attitude were slightly more than the ones with low attitude. The median attitude is 174.5
- Among the girls, 12 had low, 28 had average and 10 had high attitude towards mathematics. Girls with low attitude were more than those with high attitude. The median attitude is 172.5
- Among boys from science stream, the number of students with high and low attitude was the same, with 6 students each. 13 students fell in the Average attitude group. The median for Science boys was higher at 179 compared to Arts boys whose median attitude was 172
- For the boys from Arts stream, the result was similar to their Science counterparts.
- Among girls, the attitude was similar for both Arts and Science stream. However, the median for Science girls is 179 while for Arts girls it is 166

The table illustrates that the students having low attitude towards mathematics are more in number compared to ones having high attitude. It is also observed that the choice of subjects has little to do with their attitude towards mathematics

Objective No.2: To find out the difference in the attitude towards mathematics among higher secondary school students in Aizawl City with respect to their gender

For this, the mean and standard deviation of the scores were calculated. The mean difference were tested by applying 't'-test and the details are presented in the following table - 2

Hypothesis No.1: *There is no significant difference in the attitude towards mathematics among higher secondary school students in Aizawl City due to difference in their gender*

Table - 2
Comparison of male and female respondents with respect to their attitude towards Mathematics

Group	N	Mean	SD	SEMD	t	Significance
Male	50	175.34	10.31	2.04	1.33	Not Significant
Female	50	172.6	10.17			

The 't' value is 1.33, which shows that it is not significant at any level. The mean of Male students is not significantly greater than females. The result shows the two groups seem to be quite similar to each other. Therefore, the hypothesis - *There is no significant difference in the attitude towards mathematics among higher secondary school students in Aizawl City due to difference in their gender* - is accepted.

Objective No.3: To find out the difference in the attitude towards mathematics among science students of higher secondary schools in Aizawl City with respect to their gender

For this, the mean and standard deviation of the scores were calculated. The mean difference were tested by applying 't'-test and the details are presented in the following table–3:

Hypothesis No. 2: *There is no significant difference in the attitude towards mathematics among science students of higher secondary schools in Aizawl City due to difference in their gender*

Table - 3
Comparison of male and female respondents (Science) with respect to their attitude towards Mathematics

Group	N	Mean	SD	SeD	t	Significance
Male	25	180.2	9	2.2	0.52	Not Significant
Female	25	179.04	6.38			

The t value is 0.52, which shows that it is not significant at any level. The mean of male students is not significantly greater than females. The result shows the two groups seems to be quite similar to each other Therefore, the hypothesis- *There is no significant difference in the attitude towards mathematics among science students of higher secondary schools in Aizawl City due to difference in their gender* - is accepted.

Objective No.4: To find out the difference in the attitude towards mathematics among Arts students of higher secondary schools in Aizawl City with respect to their gender

For this, the mean and standard deviation of the scores were calculated. The mean difference were tested by applying 't'-test and the details are presented in the following table–4:

Hypothesis No.3: *There is no significant difference in the attitude towards mathematics among Arts students of higher secondary schools in Aizawl City due to difference in their gender*

Table - 4
Comparison of male and female respondents (Arts) with respect to their attitude towards Mathematics

Group	N	Mean	SD	SeD	t	Significance
Male	25	170.48	9.31	2.61	1.65	Not Significant
Female	25	166.16	9.17			

The t value is 1.65, which shows that it is not significant at any level. The mean of male students is not significantly greater than females. The result shows the two groups seem to be quite similar to each other. Therefore, the hypothesis - *There is no significant difference in the attitude towards mathematics among Arts students of higher secondary schools in Aizawl City due to difference in their gender* - is accepted.

Objective No.5:To find out the difference in the attitude towards mathematics among male students of higher secondary schools in Aizawl City with respect to their stream of study

For this, the mean and standard deviation of the scores were calculated. The mean difference were tested by applying 't'-test and the details are presented in the following table - 5

Hypothesis No. 4: *There is no significant difference in the attitude towards mathematics among male students of higher secondary schools in Aizawl City due to difference in their stream of study*

Table - 5
Comparison of male science and male arts students with respect to their attitude towards Mathematics

Group	N	Mean	SD	SeD	t	Significance
Science Male	25	180.2	9	2.58	3.75	Significant at .01
Arts Male	25	170.48	9.31			

The t value is 3.75, which shows that it is significant at 0.01 level of confidence. The mean of male science students is significantly greater than male arts students. The result shows the two groups seem to be quite different to each other. Therefore, the hypothesis - *There is no significant difference in the attitude towards mathematics among male students of higher secondary schools in Aizawl City due to difference in their stream of study* - is rejected.

Objective No.6:To find out the difference in the attitude towards mathematics among female students of higher secondary schools in Aizawl City with respect to their stream of study

For this, the mean and standard deviation of the scores were calculated. The mean difference were tested by applying 't'-test and the details are presented in the following table -6:

Hypothesis No. 5:*There is no significant difference in the attitude towards mathematics among female students of higher secondary schools in Aizawl City due to difference in their stream of study*

Table - 6
Comparison of female science and female arts students with respect to their attitude towards Mathematics

Group	N	Mean	SD	SeD	t	Significance
Science Female	25	179.4	6.38	2.23	5.87	Significant at .01
Arts Female	25	166.16	9.17			

The t value is 5.87, which shows that it is significant at 0.01. The mean of female science students is significantly greater than that of female arts students. The result shows the two groups seem to be quite different to each other. Therefore, the hypothesis - *There is no significant difference in the attitude towards mathematics among female students of higher secondary schools in Aizawl City due to difference in their stream of study* - is rejected.

Major Findings of the Study:

1. The type of subject or specialization opted by students at the 10+2 level seems to have a significant impact on their interest in Mathematics. The Science students chosen as the sample had taken up mathematics in their subject combination. Arts students are generally assumed to be disinterested in Mathematics, and that theory is proved in this experiment.
2. The high number of Science students who showed lack of interest in Mathematics was quite surprising, considering the fact that the Science students chosen for the experiment had opted for Mathematics.
3. It has been proved that number of students who had negative attitude towards Mathematics was more than the number of students with positive attitude towards Mathematics
4. Gender does not have an impact on the interest towards Mathematics. Both boys and girls share the same attitude towards mathematics.

Conclusion:

The study reveals that the majority of the students, both male and female have average attitude towards mathematics. This is the reason why India is considered to have low standards of education when compared to countries like Japan and South Korea. Children are made to memorize theorems and equations, instead of having conceptual knowledge and foundation. This makes the subject boring and irrelevant to the students. The large number of students with low interest in mathematics is also a warning sign for our country as the demand for highly skilled engineers and scientists will grow more and more. The students of Science showed more interest in mathematics, which was quite obvious. However, the high number of students with low interest was unexpected, and this experiment is a strong proof of the fact that the education standard in terms of mathematics is still very poor in Mizoram. To improve the situation, the following recommendations have been tendered:

- Mathematics should form an integral part of the curriculum and a routine part of the classroom instruction so as to develop a healthy attitude towards mathematics among students.
- Rich and diverse methods should be adopted to make sure high quality, affective learning experience is available for students
- Tasks related to sharpening mathematical skills should be imparted
- Students should be made to know the importance of mathematics, and should not opt mathematics just for career prospects alone

- Students should be made to enjoy mathematics. Special classes should be organized for students having problems with mathematics.
- Students from humanities should be made to understand and realize the importance of mathematics. Most high level jobs require basic to intermediate level mathematical knowledge.
- Classroom instructions and infrastructures should be upgraded and enriched with high tech equipments to make mathematics interesting. Visual animations should be used to illustrate complex concepts
- Mathematics should be taught with practicality in mind. Students should be made to solve problems in front of the teachers instead of simply staring at the blackboard while the teacher solves the problems himself.

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Quality of Teacher Education Programmes Organised by SCERT, Mizoram as Perceived by the Participants

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Abstract

The quality of education largely depends upon the quality of teachers. With the explosion of knowledge in the present day world, there is a great need for continuous updating of the general knowledge level of teachers, who may have undergone earlier training. SCERT, Mizoram caters to the qualitative improvement in the school system through various capacity building programmes for teachers as well as teacher educators. The present study was conducted to study the quality of teacher education programmes organised by SCERT, Mizoram as perceived by the participants. A sample of 250 teachers who had undergone one or more trainings in SCERT responded to the questionnaire administered by the investigators. The findings revealed that in various aspects of the training like physical facilities, academic aspect, availability of training materials, effectiveness of the training in developing the personal capabilities of the training and in the contribution made by the SCERT in improving the school status, the highest percentage of responses was 'average'. It was only in the effectiveness of resource persons that the majority responded as 'good'.

Key words: Quality of teacher education programmes, SCERT, Participants

Introduction

The quality of education as everyone knows, largely depends upon the quality of teachers. It is being realised that the existing education and training of teachers imparted in teacher education institutions has certain limitations. With the explosion of knowledge in the present day world, there is a great need for continuous updating of the general knowledge level of teachers, who may have undergone earlier training. It therefore, becomes necessary for teachers to equip oneself with such knowledge and skills as would stand well for his/her professional life. Hence, in-service training and

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a continuous process of education beginning with pre-service training have become more and more important.

The National Council of Educational Research and Training (NCERT) was established on 1st September, 1961 with its headquarters at New Delhi, with the main objective of improving the quality of school education. The Council operates in collaboration with the National Board of School Education and their technical agencies like the State Institutes of Education (SIE) or the State Council of Educational Research and Training (SCERT).

When Mizoram became a Union Territory in 1972, the Government of Mizoram felt the need to establish the SCERT, keeping in view the need for the qualitative improvement of education. Accordingly, the State Council of Educational Research and Training was established in Mizoram on the 24th January 1980, under the Directorate of Education, as a counterpart institution of the NCERT.

Since its establishment in 1980, the SCERT Mizoram, took up the challenges of revolutionizing the school systems through its various programmes and activities, and improved the quality of school education in the State. These programmes and activities were conducted, based on the investigations done initially by the SCERT on the problems of school education. Workshops and seminars were organized for identification of problems actually faced by the concerned officers in the fields.

The main activities of the SCERT have been:

- Organizing Training Programmes for Teachers of the High School, Middle School and Primary School levels in the New Educational Technology.
  (Radio-script writing, low-cost Teaching Aids, Computer Technology, Population Education, Adolescence Education, English Language Teaching, etc.).
- Organizing subject specific Training for all levels of School Teachers.
- Initiating implementation of new education policies and innovative practices.
- Organizing Educational Surveys and Research Studies in Schools.
- Conducting Trainings for career masters, headmasters and parents.
- Organizing community contact programmes in villages for generating awareness in education of the disabled, vocational and educational guidance and counselling, population education and environmental issues. The contribution made by SCERT has been very significant and has improved the quality of school education to an appreciable extent.

The SCERT caters to the qualitative improvement in the school system through various capacity building programmes for teachers as well as teacher educators. The various training and other programmes have been conducted by SCERT with the

objective of improving the quality of teachers in particular and the whole educational system in general.

Objective of the Study

The present study has been undertaken to study the quality of teacher education programmes organised by SCERT, Mizoram as perceived by the participants

Methodology of the Study

Descriptive research method was adopted for the study. Population comprised of all the teachers who had undergone trainings in SCERT. A sample of 250 teachers was drawn by following random sampling method. A questionnaire constructed by the investigators was administered to 250 teachers from different schools. The responses of the teachers were then analysed.

Findings of the Study

The following are the main findings on the basis of the responses of the sample teachers:

Physical Facilities for Training: The physical facilities at SCERT were found to be good by 38.8% of the trainees, average by 48.8% and poor by 7.6% of the trainees. However, 4.8% of the respondents could not respond to this opinion.

Academic Aspects of the Training:

(a) *Objectives of the training:* The objectives of the training provided by SCERT were found to be good by 48.8% of the trainees, average by 41.2% and poor by 3.6% of the trainees. However, 3.6% of the respondents could not respond to this opinion.

(b) *Content:* The content of the facilities provided were found to be good by 34% of the trainees, average by 49.2% and poor by 9.2% of the trainees. At the same time, 7.6% of the respondents could not respond to this opinion.

(c) *Material* supplied: The material supplied for the training were found to be good by 29.2% of the trainees, average by 47.2% and poor by 16.8% of the trainees. At the same time, 6.4% of the respondents could not respond to this opinion.

(d) *Delivery of Content:* Delivery of the contents was found to be good by 29.2% of the trainees, average by 57.2% and poor by 4.8% of the trainees. No response was given by 9.8% of the respondents.

(e) *Use of Audio-Visual aids*: The use of audio-visual aids in the trainings were found to be good by 34.4% of the trainees, average by 36.4% and poor by 24% of the trainees. 5.2% of the respondents could not respond to this opinion.

(f) *Organisation of Group Activities:* The group activities organized by SCERT in the training conducted by them were found to be good by 48.4% of the trainees, average by 37.2% and poor by 8.8% of the trainees. However, 5.6% of the respondents could not respond to this opinion.

(g) *Assignments:* The assignments given during training were found to be good by 33.6% of the trainees, average by 52.4% and poor by 6.8% of the trainees. However, 7.2% of the respondents could not respond to this opinion.

(h) *Follow-up:* The follow-up of the training were found to be good by 26.8% of the trainees, average by 48.4% and poor by 19.6% of the trainees. However, 5.2% of the respondents could not respond to this opinion.

(i) *Other activities*: Other activities done during the training were found to be good by 42.4% of the trainees, average by 52% and poor by 2.4% of the trainees. However, 3.2% of the respondents could not respond to this opinion.

(j) *Resource persons (Trainers):* The Resource persons of the trainings were found to be good by 62.8% of the trainees, average by 28.4% and poor by 2.8% of the trainees. However, 6% of the respondents could not respond to this opinion.

Availability of Training Materials in SCERT:

(a) *Textbooks:* The availability of textbooks was found to be good by 31.2% of the trainees, average by 38% and poor by 26% of the trainees. However, 4.8% of the respondents could not respond to this opinion.

(b) *Supplementary Books:* The supply of supplementary books was found to be good by 22.8%, average by 42.4% poor by 24.4%, and 10.4% of the respondents could not respond to this opinion.

(c) *Workbooks:* The availability of workbooks was found to be good by 32.8% of the trainees, average by 41.2% and poor by 17.2% of the trainees. However, 8.8% of the respondents could not respond to this opinion.

(d) *Teacher Guide/Manual:* The teacher guide/manuals were claimed as good by 28.8%, average by 44.8% and poor by 20.8% of the trainees. However, 5.6% of the respondents did not respond to this item.

(e) *Training Packages:* The training packages were found to be good by 32.8% of the trainees, average by 36% and poor by 26.4% of the trainees. However, 4.8% of the respondents could not respond to this opinion.

(f) *Curriculum and Syllabi:* The curriculum and syllabi were found to be good by 26.4% of the trainees, average by 48.4% and poor by 15.6% of the trainees. 9.6% of the respondents could not, however, respond to this item.

(g) *Mimeographed Publication:* The mimeographed publications were found to be good by 17.6% of the trainees, average by 40.4% and poor by 27.6% of the trainees. However, 14.4% of the respondents could not respond to this opinion.

(h) *Xeroxed Publication:* The Xeroxed publications were found to be good by 17.6% of the trainees, average by 37.2% and poor by 35.2% of the trainees. However, 10% of the respondents did not respond to this opinion.

Effectiveness of Training Programmes Organised by SCERT, Mizoram:

(a) *Development of Self-confidence:* The self confidence gained after their training was found to be good by 42% of the trainees, average by 45.2% and poor by 6.8% of the trainees. At the same time, 6% of the respondents could not respond to this opinion.

(b) *Improving Organisational Skill:* The organizational skills developed by the trainees were found to be good by 28.8% of the trainees, average by 60.8% and poor by 6% of the trainees. However, 4.4% of the respondents could not respond to this opinion.

(c) *Competency in mastering new concepts:* In relation to improvement of their competency in mastering new subjects it was found to be good by 40.4% of the trainees, average by 48.8% and poor by 6.4% of the trainees. 4.4% of the respondents could not respond to this opinion.

(d) *Competency in using different method of teaching:* The impact of the training in improving competency in using different method of teaching were found to be good by 40.8% of the trainees, average by 48.8% and poor by 6.8% of the trainees. However, 3.6% of the respondents could not respond to this opinion.

(e) *Ability to adopt innovations*: The improvement in their abilities to adopt innovations, as a result of their training, were found to be good by 30.8% of the trainees, average by 52.4% and poor by 10.8% of the trainees. However, 6% of the respondents could not respond to this opinion.

(f) *Acquaintance with new teachers:* The acquaintances with new teacher as a result of the training attended was found to be good by 34% of the trainees, average by 46.4% and poor by 13.2% of the trainees. However, 6.4% of the respondents could not respond to this opinion.

(g) *Development of audio-visual aids:* The improvement in development of audio-visual aids after attending training was found to be good by 29.6% of the trainees, average by 32.4% and poor by 29.2% of the trainees. However, 8.8% of the respondents could not respond to this opinion.

(h) *Effective evaluation of learners' performance:* The impact of training in improving effective evaluation of learners' performance was found to be good by 45.6% of the trainees, average by 44.8% and poor by 4.8% of the trainees. At the same time, 4.8% of the respondents could not respond to this opinion.

Other Contributions of SCERT, Mizoram

(a) *Enhancing Enrolment in Schools:* The role played by SCERT in enhancement of enrolment in school were claimed to be good by 25.6%, average by 50% and poor by 15.2% of the trainees. However, 9.2% of the respondents could not respond to this opinion.

(b) *Sustaining Higher Rate of Standards in Classes:* The role played by the training conducted by SCERT in sustaining higher rate of standard in classes were found to be good, average and poor by 29.2%, 48.4% and 11.6% of the trainees respectively. However, 10.4% of the respondents could not respond to this opinion.

(c) *Checking Drop-out Rates:* The impact of training in checking drop-out rates were found to be good by 26% of the trainees, average by 42.4% and poor by 20% of the trainees. However, 11.6% of the respondents could not respond to this opinion.

(d) *Achieving Target of Minimum Level of Learning:* The role played by the training in achieving target of minimum level of learning in pre-school were found to be good by 35.2% of the trainees, average by 38% and poor by 14% of the trainees. However, 12.8% of the respondents could not respond to this opinion.

(e) *Developing Parents' Motivation:* The role of training received by teachers in SCERT, in developing parents' motivations were found to be good by 25.2% of the trainees, average by 48% and poor by 17.2% of the trainees. However, 9.6% of the respondents could not respond to this opinion.

Conclusion

Regarding the impact of SCERT in improving school education in the State, the responses of the sample 250 teachers who had attended one or more trainings in SCERT were analysed. The findings from the responses to the questionnaire revealed that in various aspect of the training like physical facilities, academic aspect, availability of

training materials, effectiveness of the training in developing the personal capabilities of the training and in the contribution made by the SCERT in improving the school status, the highest percentage of responses was average. It is only in the effectiveness of resource persons that the majority responded as good. This finding would serve as useful information for improving the standard of training which will be conducted in future.

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Attitude towards Homework among High School Students in Aizawl City

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Abstract

Attitudes are simply expressions of how much we like or dislike various things. It is a generalized tendency to think or act in a certain way in respect of some object or situation, often accompanied by feeling. In some situations, our behavior is influenced by our attitudes and some other times, our behavior will determine our attitudes. The present study aims to find out the attitude of high school students in Aizawl city towards homework and to compare their attitude with respect to types of school management and gender. It was found that majority of students had neutral attitude towards homework; that government school students had a more positive attitude towards homework than private school students; that there is no significant gender difference in the attitude of high school students towards homework. Suggestions for improvement relating to homework have been proposed.

Key words: *Attitude, Homework, High school students*

Introduction:

Homework is defined as tasks assigned to students by school teachers that are intended to be carried out during non-school hours. This definition excludes in-school guided study (although homework is often worked on during school), home-study courses, and extracurricular such as sports teams and clubs. Homework is generally regarded as school work normally assigned for completion outside school time. Nowadays it is being considered an essential part of child learning. It encompasses a number of activities including revision and preparation for exams or future class work. It helps the teacher to cope with pupils of different work rates and finishing of the

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course within the stipulated period of time. It is generally given by the teachers to help the students to develop confidence, independent learning skill, to revise and practice their lessons already taught in the class. Homework or assignment is a set of tasks assigned to students by their teachers to be completed outside the class. Common homework/assignment may include a quantity or period of reading to be performed, writing or typing to be completed, problems to be solved, a school project to be built (such as a diorama or display), or other skills to be practiced. It is also teacher assigned and teacher monitored learning experiences that take place outside the classroom. It is a planned part of the education process designed to enhance student learning. Homework is also a means of demonstrating and building the partnership between home and school that leads the more consistent success in all aspects of school life.

The most common purpose of homework is to have students practice material already presented in class so as to reinforce learning and facilitate mastery of specific skills. Preparation of assignments introduces the material that will be presented in future lessons. These assignments aim to help students obtain the maximum benefit when the new material is covered in class. Extension homework involves the transfer of previously learned skills to new situations.

Homework also can serve purposes that do not relate directly to instruction. Homework can be used to (1) establish communication between parents and children; (2) fulfill directives from school administrators; (3) punish students; and (4) inform parents about what is going on in school. Most homework assignments have elements of several different purposes.

Oxford Dictionary had defined homework in different ways:

- School work that a pupil is required to do at home.
- Work or study done in preparation for an event or situation.
- Paid work carried out in one's own home, especially low-paid piecework.

The non academic benefits of homework include fostering independence and responsibility. Finally, homework can involve parents in the school process, enhancing their appreciation of education, and allowing them to express positive attitudes toward the value of school success.

Types of Homework:

There are different types of homework such as:

- *Completion :* Anything not completed in the class.
- *Practice :* Practice exercises let the students apply new knowledge or review, revise and reinforce newly acquired skills, e.g. memorization of mathematical tables, practicing spelling words, essay writing, reading for pleasure.

- *Creative :* Creative homework helps students integrate multiple concepts and promotes the development of critical thinking and problem solving skills. This type of homework often takes the form of open-ended questions and long term projects that allow students a choice, e.g. dioramas, science projects, posters.
- *Preparation :* Preparatory homework where students gain background information on a unit of study to better prepare them for future lessons, e.g. reading a chapter in preparation for discussions, pre-test, surveys.
- *Extension :* Extension assignment encourages students to pursue knowledge individually and imaginatively. Extension homework helps the students take what they learn in class and connect it with real life. It requires students to transfer specific skills and concepts to new situations, e.g. writing a book review, researching local news, compare and contrast historic events with current events.

Rationale of the Study:

Today, there is a mixed feeling among the students, the teachers, the parents and the common people about home assignment/homework as to whether it places heavy burden on the students or not. Teachers, students and parents may have negative feelings about homework. While teachers recognize the importance of homework, they observe negative attitudes. Marking and giving useful feedback on homework can take up a large proportion of teachers' time, mostly after school hours. Parents complain that homework is a tiring experience when it takes too much time leaving the kids without leisure time. Lack of an established homework policy may place either insufficient or unrealistic demands on children. They may receive too many assignments from different teachers on the same evening. However, it is universally true that homework is important because it is at the intersection between home and school. It serves as a window through which you can observe children's education and express positive attitude towards children and their education.

Some of the needs and importance of homework are as follows:

1. It improves the child's thinking and memory.
2. It helps the child develop positive study skills and habits that will serve him or her well throughout life.
3. Homework encourages the child to use time wisely.
4. It teaches the child to take responsibility for his or her work.
5. It allows the child to review and practice what has been covered in the class.
6. It helps the child to get ready for the next day's class.
7. It helps the child learn to use resources such as libraries, reference materials, and computer websites to find information.

8. It encourages the child to explore subjects more fully than classroom time permits.
9. It allows the child to extend learning by applying skills to new situations.
10. It helps the child integrate learning by applying many different skills to single task, such as book reports or science projects.
11. Homework helps parents learn more about what their child is learning in the school.
12. It allows parents to communicate about what he or she is learning.
13. It encourages parents to spark their child's enthusiasm.

From the above points, it can be seen that homework is one of the most important part of the students' learning activities and undoubtedly it can be said that it helps the students in different ways in acquiring skills, knowledge, etc. But, it can also have some negative effects on the part of the students like too much homework can place a burden on students. Students complain that the homework they are given is boring or pointless, perceiving it as a sort of punishment rather than a tool for learning progress. This loss of interest is a result of poor quality homework. Other negative effects of poorly managed homework result from lack of sufficient and necessary leisure time. These problems are often the cause of avoidance techniques such as completing homework tasks in class, collaborating and copying or simply not doing it at all. Therefore, it is very necessary to conduct a research study to find out the attitude of high school students towards homework.

Statement of the Problem:

The present study is stated as *'Attitude towards Homework among High School Students in Aizawl City'*

Objectives of the Study:

1. To find out the level of attitude towards homework among high school students in Aizawl.
2. To compare the attitude towards homework between government and private high school students.
3. To compare the attitude towards homework between male and female high school students in Aizawl.
4. To give suggestions on the basis of the findings of the study.

Hypotheses:

1. There is no significant difference between government and private high school students with respect to their attitude towards homework
2. There is no significant difference between male and female high school students with respect to their attitude towards homework

Population and Sample:

The population of the present study consisted of all students studying in high schools within Aizawl city.

Students between the age-range of 13-17 years were selected as sample in this research work. There were 100 students out of which 50 students were from government schools and 50 students were from private schools. 25 males and 25 females were selected from Government schools and another 25 males and 25 females were selected from private schools.

Tool Used:

For the present study, Attitude Scale Towards Homework (ASTH) developed by Dr. (Smt.) Usha Mishra, Department of Education, University of Allahabad, (2006) was employed for the collection of data.

Collection of Data:

For collecting the data, the investigator personally visited different government and private high schools in Aizawl city. Permission was taken from the headmasters of both government and private schools. Students' willingness to participate was taken before administering the scale. The attitude scale was then administered to 100 sampled students after giving necessary instructions and information about the purpose of the study. The respondents were asked to go through each item carefully and to respond each and every item. Later, the filled up questionnaire were collected by the investigator.

Analysis and Interpretation of Data:

Analysis and interpretation of the data was done in accordance with the objectives of the study and are presented accordingly-

Objective No. 1: To find out the level of attitude towards homework among high school students in Aizawl.

Table No. 1
Level of attitude towards homework among high school students

	Low Attitude		Moderate		High Attitude	
Respondents	No.	%	No.	%	No.	%
All High school Students (100)	14	14%	65	65%	21	21%
Government school Students (50)	9	18%	36	72%	5	10%
Private school Students (50)	5	10%	37	74%	8	16%
Male Students (25)	7	14%	32	64%	11	22%
Female Students (25)	7	14%	34	68%	9	18%

From Table No.1, it can be seen that majority of all high school students have moderate attitude towards homework. Similarly, majority of government and non-government students also have moderate attitude. The table also shows that majority of male and female students also have moderate attitude towards homework.

Discussion: It is not surprising that majority of high school students, have moderate attitude towards homework, because generally, majority of people tend to have a fairly neutral attitude towards most things. The present findings could also mean that homework is not viewed by most students as a heavy burden. Perhaps students have adapted to the high homework load, and have learned to manage their time, or perhaps, it could be that students were not given home-works that were too burdensome to the students. Therefore, this could be the reason why majority of high school students in Aizawl have had moderate attitude towards homework

Objective No.2: To compare the attitude towards homework between government and Private high school students.

Government and Private High School students were compared with reference to their attitude towards homework and for this purpose, the mean and standard deviation of the scores were taken separately. The mean difference was tested by applying the t' test and the details are presented in Table No.2.

Table No.2
Comparison of Government and Private school students with respect to their attitude towards homework

Group	No.	Mean	SD	MD	SEM	't' value	Sig. Level
Govt. school students	50	110.7	13.84	10.98	2.53	4.341	0.01
Private school students	50	99.76	11.33				

As depicted in the above table – 2, the 't' value of 4.341 is found to be significant at .01 level of confidence. The mean of Government High School students are found to be greater than the mean of Private high school students. The result indicates that the two groups differed significantly and the hypothesis "There is no significant difference between government and private high school students with respect to their attitude towards homework" is rejected. It may be inferred that government high school students have a more positive attitude towards homework than private high school students.

Discussion: Although it was found that majority of government and non-government students have moderate attitude towards homework, when comparison was made between the government and non-government high school students by applying t test, it was found that there was significant difference in the attitude towards homework between government and private high school students. Government high school students have a more positive attitude towards homework than private high school students. The possible reason could be due to the fact that government schools often give less homework to their students while private high schools give more homework to their students. This, in turn could place a heavy burden on the private high school students resulting in having a more negative attitude towards homework than the government high school students. So, this could be the plausible reason why government high school students possessed a more positive attitude towards homework as compared to private high school students.

Objective No.3: To compare the attitude towards homework between male and female high school students in Aizawl.

Male and female high school students were compared with reference to their attitude towards homework. For this, the mean and standard deviation were taken separately. The mean difference was tested by applying the 't' test and the details are presented in the following Table No.3

Table No. 3
Comparison of Male and Female high school students with respect to their attitude towards homework

Group	No.	Mean	SD	MD	SEM	't' value	Sig. Level
Male students	50	105.1	13.7	0.38	2.762	0.138	N.S
Female students	50	105.4	13.92				

It was hypothesized that there was no significant difference between male and female high school students with respect to their attitude towards homework. From

the above table, the obtained 't' Value of .138 was not significant at any level. Hence, the hypothesis cannot be rejected. Therefore, it was accepted. This shows that there is no significant difference between male and female high school students with respect to their attitude towards homework. The mean of the female students was slightly more than the mean of the male students indicating that females seem to have a more positive attitude towards homework. However, this difference could be due to chance factor as it was not significant at any level of confidence.

Discussion: There is a common assumption among many that men and women are very different. An analysis of 46 meta-analyses that were conducted during the last two decades of the 20th century highlighted that men and women are basically alike in terms of personality, cognitive ability and leadership. Hyde (2005) discovered that males and females from childhood to adulthood are more alike than different on most psychological variables, resulting in what she calls a gender similarities hypothesis. Hyde observed that across the dozens of studies, consistent with the gender similarities hypothesis, gender differences had either no or a very small effect on most of the psychological variables examined. The present study also found that gender difference does not seem to affect the attitude towards homework. Therefore, the probable reason why no significant difference was found between male and female students with respect to their attitude towards homework could be because males and females are more alike than different on most psychological variables as was also discovered by Hyde (2005).

Objective No.4: To give suggestions on the basis of the findings of the study.

The following points are suggested for better improvement with regard to homework

- Home environment play a significant role regarding children's attitude towards homework. Thus, parents should provide a lively and stable atmosphere at home.
- Teachers play a vital role with regards to their student's attitude towards homework. As such, they should act as a counselor and a guide. They should encourage their students so that their students develop more interest in their homework.
- It is suggested that students must study with passion and dedication.
- Students should be motivated to spend maximum amount of time in their studies.
- Teachers should give students the opportunity to brainstorm and then select their own essential questions that they wish to explore at the beginning of class or unit.

Conclusion:

From the present study, it can be concluded that majority of high school students in Aizawl had average level of attitude towards homework. Again, it was also found that there was no significant difference between male and female high school students in their attitude towards homework but there is a significant difference between government and private high school students where the government high school students had higher attitude towards homework than private high school students. It would be pertinent if all stakeholders be aware of these findings so that relevant measures may be taken to resolve any short coming in the system.

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Teacher: Innovator or Imitator

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Abstract

Teaching is very contextual task therefore no manual can be prescribed for what makes a teacher effective and competent. Successful teaching is essentially a pursuit to inquisitiveness and innovativeness. Whoever has an insight to understand the context of teaching and learning, and also can be spontaneous designer of instruction, they are regarded as charismatic teachers. This capacity can also be developed at a certain extent within all the teachers through the development of the understanding of two processes i.e. research and innovation. Both processes are interrelated and help the teachers to develop an insight to understand the context of their profession. Over and over again various issues related to different aspects of education (namely curriculum, instruction, management etc.) are emerging in new or different form. Changing and emerging issues of education in a particular context cannot be tackled with the readymade and timeworn solutions. Teachers are required not only to keep the pace with the change in the society but also to play a directive role in the process of change. Change requires teachers to be innovative. Understanding the concept of innovation is central to play a substantial role in the process of change and the process of development. In general observation it has been found that in our country the very concept of innovation has remained a matter of debate and doubt. Innovations, whatsoever developed, are developed by the persons sitting in the centre and teachers are mandated to imitate. Whereas the very spirit of the term 'innovation' demands that practitioners themselves should be the innovators not the imitator.

This paper is delineating with the concept of innovation, its features and conditions, teacher as innovator and some prototypes of innovation in teaching and learning with the intention to share ideas for the sake of revival of a culture, suitable to the practices of innovation.

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Teacher: Innovator or Imitator

Key words*: Teacher, Innovation, Imitator*

The Overview

Education is more alive and dynamic among all social processes and institutions. If any pyramid of social processes is possible to be made, education shall certainly be placed at the top. Being an important sub-social system it should also go along the changes in the society. Changes in education systems which are obligatory are largely in educational organization and practices; and the teachers are responsible to bring and handle these changes. At times they are required to initiate some changes. At the institutional level, teachers are often required to be the anchor-person of implementation of new changes. We know it very well that change is inevitable, but in education system it is much faster due to the fast development in the field of knowledge. Now the question is, how can teachers respond to the infinite calls of change? How should their answer to the particular contextual question be sustainable and trusted by their professional community? Teachers, therefore, should follow an objective procedure. They should provide scientific bases to their insights and experiences. For illustration, if they are developing a better method of language teaching suitable to particular type of students that must be trustworthy and can be replicable by them or other practitioners. Hence to become a skilled craft-man of their profession, teachers are required to be innovators and researchers. In short we can understand that all endeavours by the teachers (practitioners) which is applied for the betterment of the educational systems can better be explained by two major processes or key terms i.e. Innovation and Research. Here centre of discussion is first one i.e. Innovation.

Why Innovation?

We as teachers are required to cater to the needs of all types of students in our classroom. We can observe that in every session different students are coming in the classes with different interests and needs. One treatment can never be suitable to all the students. To become successful teachers we are required to be advanced in our thinking and approach. In short we should be teacher-innovators. Teacher as innovator means a continuous 'seeker and sharer of new practices' (Lippitt, et al. 1973).

In the fast changing socio-political context where we as teachers are required to respond to so many different types of dynamics which are affecting education and our services, such as increasing number of students, new policies like *inclusive education, multi-graded class-rooms, first generation learners, knowledge explosion, demand of knowledge society, prompt advancement of technology of teaching, mandatory use of ICT* etc..Again area of teaching is so diverse and dynamic that survival in profession may be difficult without being innovative. In the simplest words we must search some new ways to deal our daily matters in the classrooms. Innovativeness has been found

negatively related to *dogmatism, traditionalism* and *conservatism* (McGeown, 1980). Teacher as innovator includes some characteristics which are positively related to innovativeness. This set of characteristics includes *venturesomeness, radicalism, originality and flexibility, progressivism, liberalism, acceptance for change*, and *perceived competence* (McGeown, 1980). When you will go through the concept of innovation and will observe the situations of teaching, you will say teachers by their very profession are innovators or nothing. Before passing such a judgment, we should re-examine the concept of innovation.

The Delineation

The literal meaning of innovation is to make something new. The meaning of the term is rooted in Latin word '*innovare'* which means to renew or alter. It means to change something established by introducing new methods, ideas or products. This word also denotes restoration or renewal (online etymology dictionary, n. d.).

By literal meaning it seems that innovation is a little bit complex to define. It denotes something 'new', But something may be new for me and old to you or vice versa. Another meaning of the word is to 'alter or change'; but all types of changes cannot be termed as innovation. Without going long way round we would like to share with you that Innovation is more near to *improvement* than change. Change is a distinguishing feature that helps us to observe the innovation. Hence we can generalise that the change accompanied by novelty denotes innovation. As discussed earlier, everything new in school cannot be termed as innovation. If it is improving the system in part or whole, then it may come under the category of innovation. Here it makes us clear that a qualitative change or improvement in services by school, and changes which are fundamental to the school climate and situations of functioning of school are characterising innovation. Yet again we should remember that every fundamental and new change that occurred (happened) in school is not necessarily a result of innovation. The question 'what is innovation?' has yet remained unanswered. By foregoing discussion we can conclude that fundamental and novel changes called forth or brought to by initiatives of teachers (innovators) should only be called as innovation. For our understanding we can formulate as;

Innovation = Novel + deliberate + change + initiative + improvement.

Meaning and features denoted by all these words jointly may help us to understand the concept of innovation. Since now we will be able to use the term 'innovation' in its real sense.

It is quite conducive to go through the words uttered by experts in concerning field while discussing any technical concept in order to have a clear vision of that concept. We will have a look over some of the definitions and analyse it.

Teacher: Innovator or Imitator

Miles (1964) defines innovation "as a *deliberate, novel, specific change* which is thought to be more efficacious in accomplishing the *goals* of a system".

Noel (1974) stated "by innovation we mean any *change* in one component of the educational system which is not made simply for the sake of change but with the intention of promoting *improvements* in the aspects concerned and — having regard to the close interdependence of all such aspects — in the system as a whole".

CERI[1](1973) defines innovation as " We understand innovation to mean those attempts at change in an educational system which are *consciously and purposefully* directed with the aim of *improving the present*. Innovation is not necessarily something new but it is *something better* and can be demonstrated as such".

According to Rogers and Shoemakers (1971) "An innovation is an idea, practice, or object perceived as new by an *individual*."

Here we should observe that Miles defines innovation by highlighting features of *deliberate* and *novel* planning. Further he makes it clear that novelty means an essential qualitative difference either through change in *whole system* or recombination of *parts*. CERI calls innovation something *deliberate to improve practice* and to obtain certain *defined aim*. Here thoughtful attempts are again highlighted. Component of *novelty* is explained by Rogers and Shoemaker. By the word *individual* it is quite clear that something perceived new by you can be an innovation for you only. Objectively new is not a condition of innovation which is also cleared by Rogers and Shoemakers in their definition.

Innovation is a thing which is more qualitative in nature. Exact measure is not always possible to determine the level at what innovation has occurred or reached. A scholar has stated at such an extent, *"like beauty, innovation exist only in the eyes of beholder. And it is the beholders' perception which influence the beholders behaviour"*(Rogers, 2003) It can be termed as the process of constructive thinking (Watson, 1967). Owing to immaterial nature of innovation, different models of innovation have been suggested. These models explain how innovations are developed, disseminated and utilised. For example a few models are listed below:

Havelock (1971) identifies the following models:

i) Research, Development and Diffusion Model(RDD)

ii) Social Interaction Model

iii) Problem Solving Model

[1]CERI- Centre for Educational Research and Innovation: this is a unit of Organisation for Economic Co-operation and Development (OECD).

Schon (1971) noted two major and some variant of these two:

iv) Centre periphery model (there are two variant of this model, i.e., Johny Appleseed & Magnet)

v) Proliferation of Centre Model (very common in India)

The Features (Conditions)

Quite a few exponents in the field of innovation have specified the characteristics of innovation. Characteristics of innovation are correlated to the rate of adoption of an innovation (Nicholls, 1983). These characteristics are important factors in determining the extent to which an innovation can be adopted and implemented. To be effective innovator we should keep in mind these characteristics. Let us discuss characteristics of innovation as classified by Rogers and Shoemaker (1971):

i) **Relative advantage:** This feature of innovation denotes the extent to which an innovation is better than the idea, objects or practices it supersedes. In general an innovation should be cost effective in terms of time and money as well as be better than the older in terms of comfort. In the field of education most of the innovations are assessed in terms of 'learning achievement' of the students. This feature is *positively* correlated to the rate of adoption.

ii) **Compatibility:** Here compatibility of innovation means the extent to which an innovation perceived is consistent with the philosophy and ability of the users or people involved. Compatibility is also *positively* correlated to the rate of adoption. Lack of compatibility is a major threat to the success of innovation. Compatibility is very difficult to measure and assess beforehand.

iii) **Complexity:** complexity of an innovation is *negatively* correlated to its rates of adoption. Complexity occurs because innovation characterised by novelty consequently perceived difficult to understand and use by the stakeholders. Major reason of complexity in educational innovations is use of jargons. To prove his/her innovation's novel, innovators sometimes intentionally uses self-coined terms. Another factor is lack of well thought-out delivery from innovator. To grow as a successful innovator and for successful dissemination of our innovation, first we should be very clear in our own minds, and then we should communicate it to our colleagues (users) in a simple and lucid style.

iv) **Trialability:** Trialability is the term coined by Rogers and Shoemaker (1971). It is again *positively* related to the rate of adoption. It is the extent to which the innovation can be tried-out on a limited basis. If an innovation proposed to a school is providing a mode of limited try-out, it is more likely to be adopted. It

means a school administration can try the particular innovation at a small scale. For example if new teaching approach is to be adopted, first it should be tried (used) in a few classes only. Limited try-out mode does not risk the collapse of whole existing and running system.

v) **Observability**: this feature is also *positively* related to adoption rate of innovation. It denotes the degree to which the results of an innovation are visible to others. It has been found in some studies that there was an acceptance of innovation that could be seen to be working successfully in other schools.

The Process

It has already been stated that innovation is a process of constructive thinking. When we innovate we change something established by introducing new one. Indirectly innovation is always a challenge to existing system. Some socio-political and psychological forces are always ready to react negatively to the innovation introduced to change particular setting of school. Also challenges occur owing to *inadequate training of implementer* (teacher), *educational bureaucracy* (major factor in Indian context), and *administrative reticence* —as secrecy maintained in case of policy of community participation, (Tripathi, 2012),— *community indifference, insufficient finance* etc. Therefore to initiate and maintain the innovation in our country is a big challenge. It is a strategic task which can only be imbibed through the comprehensive understanding of the process of innovation. Some experts on the subject have fixed some stages or phases in the process of innovation planning, development, and implementation. Rogers and Shoemaker (1971) views four stages of the process namely, *Knowledge, Persuasion, Decision* and *Confirmation*. Whereas Watson (1967) proposed ten steps derived from analyses of constructive thinking and problem solving. Steps proposed by him are *sensing, screening, diagnosing, inventing, weighing, deciding, introducing, operating, evaluating* and *revising*. According to Watson success at each step depends on 'cognitive clarity' about the goal and method of each process.

The Teacher as Innovator

So many determiners have been attached to the professional roles played by the teachers such as 'teacher as change-agent', 'teacher as researcher', teacher as reflective practitioner' 'teacher as mentor' 'teacher as counsellor' 'teacher as innovator' and so on. Accordingly this type of attachment to their functions undeniably makes the task of teachers very complex. Teachers are required to speculate constantly to develop and implement the strategies, techniques, methods and other pedagogical skills to respond to classroom dynamism. Going through the concept of innovation and conditions of teaching you can infer that teachers are required to change their

instructional strategies, approaches, methods, and classroom management constantly each and every week, month and session. More often teachers are required to change the teaching technique and strategy during their single period only. Innovative teachers only possess this capacity to accommodate successfully in dynamic classroom situations and to come out with better results in terms of learning among students.

Technological advancement has also put a demand before the teachers not only to be aware but also to be innovative in the use of information and communication technology (ICT). Nowadays teachers are required to guide the students also by using ICT, social media and other online portals. Furthermore it is the fact that ICT is one of the most used and misused thing in the field of education and broadly in the whole society. Therefore successful constructive use of ICT for better teaching depends on the innovative temper of the teachers and their initiatives. Another factor is that school is such a social institution that is more susceptible to change. Being a change-agent institution, it changes more rapidly during general social changes. So to be an effective and live school, it is required to be 'problem solving school'. It should solve the problems of the clients and society as well. One more fact in this context is that schools are known by their teachers and students. Teachers are key functionaries in effective schools. We as teachers are required to be problem solvers and change agents. Our thinking should precede the occurrence of a problem in school and society. Without being an innovator and researcher we cannot perform these duties of change-agent, counsellor, mentor, philosopher, visionary etc. Through little speculation on the roles and responsibilities of teachers to society we can understand that each effective teacher is an innovator.

Innovation in Teaching and Learning

Being a live and dynamic area, education as a discipline has a long history of innovations. Carlson (1965) observed "an educational innovation has a natural history and in a sense a life cycle. The full account of the life cycle of an innovation is the story of its invention, development and promotion, adoption, diffusion and demise". This means to say that many things which are not new or somewhat seem out-dated have been the result of innovation of a certain time. Such as micro teaching, team teaching, lesson planning, unit planning, programmed instruction, computer assisted instruction (CAI), classroom interaction analysis, models of teaching, taxonomy of instructional objectives, action research, choice based credit system (CBCS) etc… are a few names from an endless list of innovative practices in teaching and learning.

I. **Instructional planning:** As teachers are at all times dealing with new situations in the classrooms so instructional planning is always an innovative process. Here we are required to forecast about the classroom learning before going to instruct. It is cognitive ability of the teacher how s/he is assuming the situation of

classroom. Planning of lesson is important as it avoids deviations from the side of teachers as well as it saves their time and energy. As innovation itself is 'process of constructive thinking' so for a moment planning a lesson seems synonymous to the concept of innovation. There are so many models of lesson planning which are available at present but the first and foremost innovation in the area of planning was done in the first half of 19th century by J. F. Herbart which is popular as Herbartian approach or five step approach. Five steps proposed by Herbart are *preparation, presentation, association, generalization,* and *application* (New World Encyclopaedia, n. d.). Later on H. C. Morrison developed an approach to learning in which material is organised into units (as cited in Mangal & Mangal, 2010). Morrison's plan served as precursor of 'individualised instruction' and 'mastery learning'. Bloom's taxonomy (1956) of writing instructional objectives (1956, revised in 1990s) was another innovation for strategic planning. Whereas Bloom's 'evaluation approach' of lesson planning is also popular.

II. **Transaction:** After instructional planning comes the main phase of teaching, i.e. transaction of content in the classroom. This phase always demands innovation to sustain the attention and interest of the students. Sometimes teachers themselves start feeling monotony and boredom due to lack of novelty and change in teaching style. Again catering to the individualised and emerging demands of various types of students in the classroom itself becomes a challenge before the teachers. Emergence of teaching machine, use of ICT in classrooms, development of programmed instruction, computer assisted instruction, learner controlled instruction, play way methods of teaching, activity based learning, constructivist approaches to teaching and learning, are a few examples of innovations in the area of transaction. Besides all the pedagogical and communicational development such as teaching models, methods, approaches, techniques, strategies are falling in the category of transactional innovation.

III. **Assessment**: Teaching and evaluation are the two aspects of the same coin. Success of teaching cannot be determined, besides teachers can't improve their teaching without proper and serious attempts for assessment of learning. To ensure comprehensive assessment of learning, continuous attempts are being made in the field of education. Continuous and Comprehensive Evaluation (CCE), Grading system, Choice Based Credit System, Open Book Exams, Group assignment strategies, Student self-evaluation, peer evaluation etc. are a few examples and results of innovations in this area. Beside foregoing innovative techniques, teachers can devise their own innovative technique or can modify the existing one.

IV. **Classroom Management**: Classroom management is a very complex thing to execute. Effective teachers are those who encourage the appropriate classroom

behaviour and respond properly to misbehavior. We cannot presume the good and bad behavior of the students before going to the classroom. If we want to be an effective classroom manager, we have to be the part of classroom. We must possess a better understanding of classroom dynamics and students' cognitive-affective status. Before anything else in the class, classroom management is the foremost to handle with otherwise we will not be able to teach. Creating an environment and culture of learning in the classroom demands the competency of innovation. Teachers are required to be extempore innovator in handling classroom situation. Understanding of classroom dynamics and proper use of reinforcement schedule may be helpful. An effective teacher can bring novelty even in taking attendance of the students, which may have a positive impact of classroom management and discipline.

Innovation is an activity supposed to be executed by the teachers with the aim to improve the practice and situation. This is very effective and urgently required to ameliorate the conditions of education system at every stage. I would like to restate the words taken from National Policy on education, 1986 (Govt. of India, 1998),
"*Education needs to be managed in an atmosphere of utmost intellectual rigour, seriousness of purpose and, at the same time, of* ***freedom essential for innovation*** *and creativity (p.25).*"

"*Teachers should have the* ***freedom to innovate****, to devise appropriate methods of communication and activities relevant to the needs of and capabilities of and* ***concerns of the community*** *(p.32).*"

From the above quotes conditions of innovation can well be derived here. First and foremost is the free environment where free thinking can flourish and second the understanding of the local context or concerns of the community. Free thinking is one of the integral characteristics of teachers' personalities. But it is sorry to say that increasing political and administrative interventions in teaching profession has affected it badly. Bossy approach is leading it to the bosh. Hence satisfying the administrative bosses has become the primary duty within teaching profession. Consequently teachers are more responsive to administration and hardly to the community which they are serving in. In such a scenario teachers can scarcely be independent to devise and execute something new to bring a change and improvement. Conditions of innovations are required to be improved in our country. Here the term 'innovation' has remained in the policy documents and theoretical text. Most of the innovations in India are either adopted from foreign lands or developed by central agencies. Consequently teachers were made to imitate, and maintain the innovation. Such types of adoptions of innovation usually become a type of cognitive burden on teachers. Top down approach of planning has never been effective in the field of education. Therefore decentralization

has become the world-wide policy in educational management and planning. For the sake of quality of education and successful implementation of the different policies at local level teacher should essentially be the innovators, not the imitators.

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A Study of Emotional Maturity among the Students of Mizoram University's Constituent College in Mizoram

Lalrammawia Tochhawng *

Abstract

Emotional maturity is required in order to create positive development among the students. If a person is not emotionally mature, difficult circumstances cannot be confronted with positive ends. So, while giving knowledge through education, the formation of good mentality that leads to emotional maturity cannot be ignored. Matured persons are expected to have the qualities of an adult. A matured person possesses knowledge and experience about situations and have adapted accordingly. An emotionally matured person understands the circumstances and is aware of the consequences of controlling the situations. Besides, an emotionally mature person is able to find out the causes of different emotions and learns to identify them clearly. This study tries to find out the emotional maturity level of the students of Pachhunga University College, Aizawl which is the only constituent college under Mizoram University. It also tries to find out the difference between the emotional maturity level of male and female students. Measures for enhancing maturity of emotions among the students are suggested.

Key words: *Behavioral change, Emotional maturity, Future generation, Emotionally stable, Emotionally unstable.*

Introduction:

Emotional maturity is defined as the ability to control emotions and take full responsibility for life along with its opportunities. A large part of being emotionally mature is having the ability to handle anger, disappointment, guilt, resentment, fear, jealousy, grief, insecurity and a myriad of other feelings appropriately. Emotional maturity means when you have the ability to experience negative emotions and then quickly let them go. People who are immature seem to remain stuck in these negative

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emotions; unable to get past them. Emotionally mature person develops attitudes in relation to himself and his environment which raise him above childishness in thought and behavior. An emotionally mature person accepts criticism gratefully; is honestly glad to an opportunity to improve and does not indulge in self-pity. Emotionally mature person has full control over his life. Some characteristics of an emotionally mature person are:

1. *Empathy:* Empathy is the ability to understand and share the feelings of another person. When an individual has empathy for others, only good things can come. One becomes more understanding, is able to compromise and has greater emotional intelligence. Empathy makes one more approachable which is an important trait of an emotional mature person.

2. *Accountability:* Accountability means the obligation or willingness to accept responsibility or to account for one's action. When one is able to admit his wrong, and face the consequence for his own mistake, that person has emotional maturity. A person lacks emotional maturity if he denies his wrongdoing and tries to blame someone else. Emotionally immature people do not take accountability for things they have done.

3. *Self awareness:* Self awareness refers to conscious knowledge of one's own character, feelings, motives and desires. Self awareness is one of the foundations of emotional maturity. A person having self awareness will be able to identify his own emotional condition, observe his own thoughts and feelings, and will be able to judge himself based on the same standard that he judges others. Since self aware persons are more critical of themselves and are more perceptive of their own actions and emotions, they can take criticism much more than others who are unaware of their emotions. Therefore, self awareness is an important trait of emotional maturity.

4. *Flexibility:* Flexibility means ability to change or be changed easily according to the situation. A person willing to change or compromise is a flexible person. Being flexible is a sure sign of emotional maturity. Patience is one trait of a flexible person. if one cannot keep his cool during times of change or while problems turn up at the spur of the moment, one will not be able to make calm and informed decisions.

5. *Confidence:* Confidence refers to a quality of being certain of one's own ability. it is a feeling or belief that one can do something well or succeed at something. Confidence is one of the essential components that bring about emotional maturity. But being too confident may not be good as it might make a person overly conceited. At the same time, not having enough confidence may result in

developing low self esteem. An emotionally mature person has the right amount of confidence and trust in his own decision. he is also ready to take criticism necessary if he happens to make the wrong decision.

Need of the Study:

A well-mature person knows his strengths and weaknesses. He tries to make capital out of his assets in some areas by accepting limitations in the other. Dislike of one's self is a typical symptom of instability. An adjusted individual has respect for one's self as well as for others.

Countless college students among the Mizo community demonstrate emotional immaturity which is evident in their behaviours in various situations. One possible reason could be because they are deprived of a suitable place to spend their leisure time, for instance there are no public parks and good recreation centers for the youth where they can give expression to their misery and depression. Most public gatherings are initiated by the YMA (Young Mizo Association) for community works. Society also has this practice whereby the youth are somehow mandated to visit any bereaved family in the form of condolence whenever someone dies in their locality. These practices present numerous demands to the youth and these young people find it difficult to make up their minds. They are afraid of moving away from the various activities of the community as they are also a member of the YMA. At the same time, being a college student, they need to give more time for their studies, as these activities are definitely curtailing their study time. College students are still young and energetic and have difficulties in making quick decision. So, they are forced to depend largely on the societal practices which led them to their today's life. They are not daring enough to accept their philosophies, rather they are being pressurized by the community. The specific need for identifying the occurrence of emotional maturity is a natural and inevitable essential outcome of student growth and development rather than among pathological symptom. Emotional maturity becomes important in the behavior of individuals. As the students are the pillars of the future generations, their value patterns of emotional maturity are vital. So, the investigator intends to study the emotional maturity of Pachhunga University College Students which is the one and only constituent college under Mizoram University.

Objectives of the Study:

The investigator has framed the following objectives for the present study.

1. To study the level of emotional maturity of Pachhunga University College students
2. To study the level of emotional maturity of male and female students of Pachhunga University college.

3. To suggest measures for enhancing the emotional maturity of the students.

Methodology:

Status Survey method has been adopted in the present study. The investigator selects students of Pachhunga University College (which is the only constituent college under Mizoram University) for the study. Altogether there were 525 male and 630 female students during data collection. But the investigator selected only 60 (30 males and 30 females) students for the present study due to time constraint and financial problems.

For conducting this study, the investigator employed The Emotional Maturity Scale (E.M.S) developed by Dr. Yashvir Singh and Dr. Mahesh Bhargava, 2006. A systematic procedure was followed to collect the necessary data/information. Before distributing the questionnaire to the different concerned students studying at undergraduate classes, the investigator first introduced himself and necessary rapport was established with them. Then, he explained to them the objectives and importance of the present study. Necessary clarifications were also made to them. When the subjects were found to be clear about every aspect of the instrument and how to answer the same, the questionnaires were distributed to them. They were requested to go through the questionnaire and answer all the items. Any expression of doubt and difficulties was also taken care of by the investigator. Then, the filled in questionnaire were collected back from the subjects after they finished answering the same. The questionnaires were scored in accordance with the scoring key provided in the manual, and then they were tabulated and analyzed.

Analysis and Interpretation of Data:

The data collected from the respondents were analyzed and interpreted in accordance with the objectives stated earlier.

Objective No 1: To study the level of emotional maturity of Pachhunga University College students.

In order to find the level of emotional maturity of the students, the scores obtained by the students were tabulated and interpretation is done in accordance with the norms provided in the manual. The Emotional Maturity of students of Pachhunga University College is presented in Table No. 1.

Table - 1
Level of Emotional Maturity of Pachhunga University College Students

Category	No. of Students	Percentage
Emotionally stable	9	15.00%
Moderately Stable	16	26.67%
Emotionally Unstable	35	58.33%

As shown in Table No. 1 there are 15% students who are emotionally stable, 26.67% of students are moderately stable and 58.33% of students are emotionally unstable. Thus majority of the students from Pachhunga University College are found to be Emotionally Unstable.

Discussion: Emotionally immature people are those that have not moved onto adult ways of thinking and behaving. They seem to be trapped in a childish mentality and do not even realize it. The present study found that most of the college students are emotionally unstable, which means they are emotionally immature. Subbarayan and Visvanathan (2011) in their study on emotional maturity among college students also found that the emotional maturity of college students is extremely unstable. The possible reason for the present findings could be traced back to the community's practice of bringing up their children. The Mizos seem to have nurtured a generation that makes a crucial blunder when it comes to child rearing. Lots of parents allow their children to get away with things, they stand up for them when they do something wrong, they pay no attention to their tantrums, and allow them to follow their passions, and on top of this, they would just brush it off and say, 'kids will be kids'. There is no doubt that kids will always be kids, but to let children indulge in this kind of behaviour eventually means that they will never grow up emotionally. One important difference between maturity and immaturity is the ability to accept responsibility for one's behaviour. Looking at the way many of the Mizo youth are brought up, it is no wonder that these youth do not have much sense of responsibility, empathy or confidence.

Even small children can be taught to take responsibilities for their action. When small children dump all their toys out onto the floor, it will often be the parents who will pick up the toys and put them back to where they were. In cases like this, children will never learn that there are consequences to their action. They will not worry at all even if they make a mess because they will think that someone is there to clean it all up. This idea will stick to them unless they are taught differently. Emotionally immature children are thrust into adulthood where all of a sudden, they have to accept responsibility for their action in ways they never ever had to do as children. Thus

many of them may end up getting hurt, lose confidence, lack independence, constantly seek attention, and become extremely self centred which are all signs of emotional immaturity. Therefore, the main reason for majority of college students having emotional immaturity could be accounted to the community's child rearing practices which is rather prevalent in the society.

Objective no. 2: To study the level of emotional maturity of male and female students of Pachhunga University college.

The level of Emotional Maturity of male and female Students of Pachhunga University College is shown in Table No.2.

Table - 2
Level of Emotional Maturity of Male and Female Students

Category	Male		Female	
	No .of Student	%	No. of Student	%
Emotionally Stable	4	13.00%	5	16.67%
Moderately stable	10	33.33%	6	20.00%
Emotionally Unstable	16	53.33%	19	63.33%

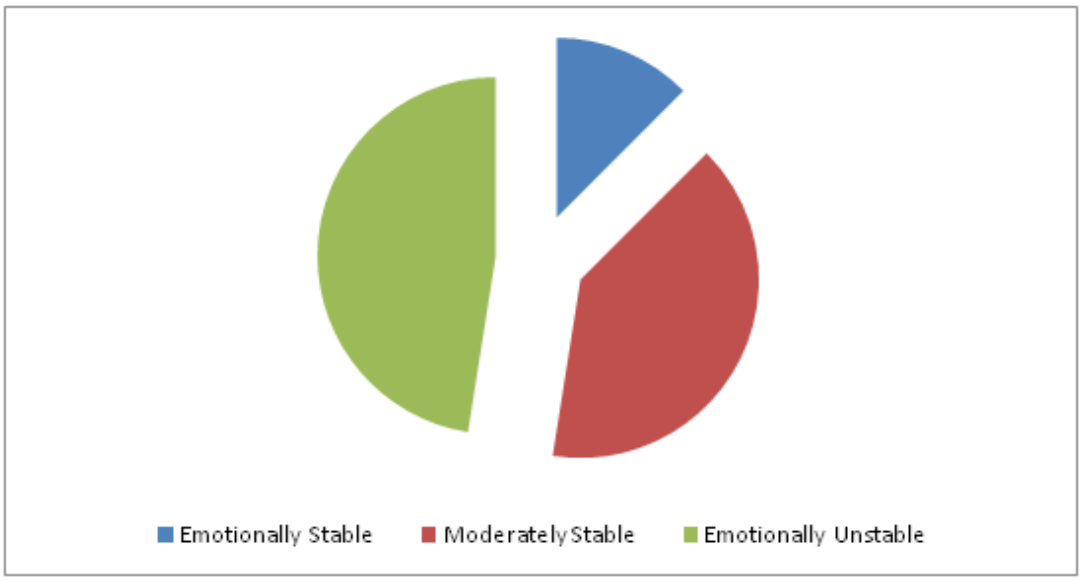

Fig. 1: Categorization of Emotional Maturity for Male students in Pachhunga University College

Fig.2: Categorization of Emotional Maturity for female students in Pachhunga University College

Table No. 2 shows that 4 (13%) males and 5 (16.67%) females are Emotionally Stable, 10 (33.33%) males and 6 (20%) females are Moderately Stable and 16 (53.33%) females and 19 (63.33%) males are Unstable. This shows that more females have unstable emotion while more males have moderately stable emotions among the students in Pachhunga University College. This means that higher percentages of females are Emotionally Unstable as compared to the males.

Discussion: Similar to the present findings, Aleen and Sheema (2005) in their study found that female students were less emotionally stable as compared to male students. Sinha (2014) also found that boys are more emotionally mature than their girl counterpart. Among the Mizo culture, expressions of emotion are thought to be a feminine characteristic and therefore are not manly, men should be seen as stoic. In primary schools, if a girl is seen crying, she would be given hugs and sympathy, but if a boy cries, he would be teased and insulted. This attitude is rather prevalent in the society, although people may not be aware of it. The result is that males have been trained from a very young age to be stoic, and not show emotion, while females are taught that it's fine for them to be emotional. If, 'expressing emotions' or 'acting out one's emotions' are regarded as being emotionally unstable, then this could be the reason why female students are found to be more emotionally unstable than the male students of Pachhunga University College.

Objective No. 3: To suggest measures for enhancing the emotional maturity of the students.

Measures for enhancing maturity of emotions among the students are suggested.

As majority of students are having unstable emotional adjustment, the following measures are suggested for enhancing maturity of emotions among the students.

1. Parents and teachers should ensure that gender bias does not exist in the slightest manner at home and school environment
2. It is suggested that educational institutions should organize various personality development programme from time to time to help the students mature emotionally.
3. Parents should teach their children to take responsibility for their action. They should not allow them to go into adulthood emotionally immature.
4. Students should be encouraged to actively participate in co- curricular activities in the school as well as social and church activities as this will help them greatly to have good social and emotional adjustment.

Conclusions: The present findings have important implications for teachers, parents and the community. They should be aware of the student's mindset and should be considerate, sympathetic, appreciative and supportive towards them. Preventive measures may be taken by all stakeholders, and any sign of emotional immaturity should be nipped in the bud because students are the pillars of the future generation

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