

CHAPTER-4

DATA ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

In the previous chapter a complete account of the approach to collect the required data for the present study was presented. The present chapter includes analysis and interpretation of the study conducted on Std-IX (GSEB) students of CAROTAR ENGLISH MEDIUM SCHOOL, ANAND.

The Present chapter is devoted to the analysis and interpretation of the data collected. They have been placed before the objectives with which the research had been taken. Thus, the objectives and the outcomes of the research have been verified and the hypothesis has been tested.

4.2 DATA ANALYSIS AND INTERPRETATION

The researcher formulated a null hypothesis, i.e. ‘There will be no significant difference in the observed frequencies and frequencies expected against equality hypothesis on various statements of scale.’

To test the hypotheses for each statement frequencies and χ^2 was calculated and then % analysis was done to get better picture of responses.

Reactions of the Student were analyzed on the term of Percentage responses, χ^2 and presented below, statement wise.

Test the hypothesis, i.e. ‘There will be no significant difference in mean achievements of control group and experimental group on post-test ‘the collected data were analyzed quantitatively using ‘t’ test.

Study the effectiveness of CAP, Mean, S.D and Independent t-value was computed.

The analyzed data has been presented through Table – 2.

P.T.O

Table 2. Mean, S.D, SEm, Df and ‘t’ value.

Group	No. Of students	Mean scores	S.D	SEm	df	t-value of significant level
Experimental	40	27.5	7.36	1.16	78	4.92 (0.01)
Control	40	19.68	6.84	1.08		

From the above table the computed t-value of 4.92 is greater than the table t-value of SEM at 0.01 levels for 78 degree of freedom.

The null hypothesis that there will be no significant difference in mean achievement scores of control group and experimental group, is rejected. At the 0.01 significant level, the table value of χ^2 against 78 degree of freedom is 2.64. Here calculated value of χ^2 is greater than table value of

χ^2 . So, the null hypothesis is rejected.

Therefore there is significant difference in expected frequencies and observed frequencies.

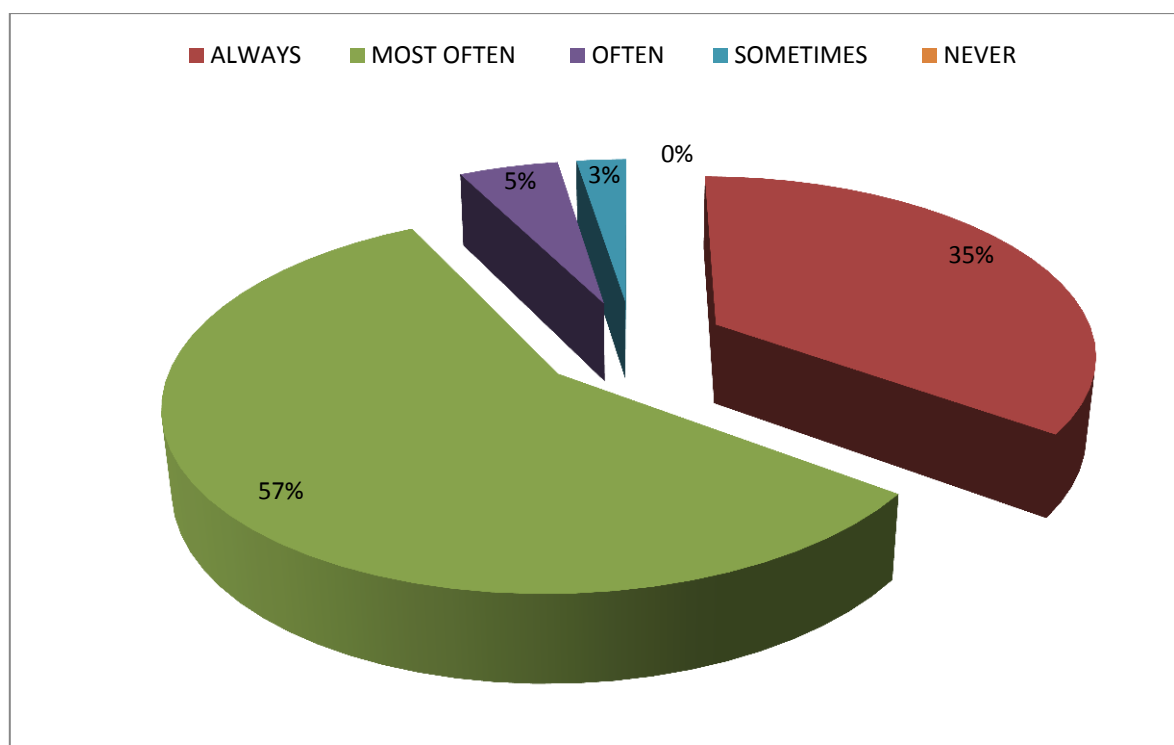
4.3 DATA ANALYSIS AND INTERPRETATION OF REACTION SCALE

STATEMENT: 1 THE COLOUR-COMBINATION OF THE PROGRAMME

TABLE: 3 Analysis of responses of students on STATEMENT-1

	ALWAYS	MOST OFTEN	OFTEN	SOMETIMES	NEVER	χ^2 AND LEVEL OF SIGNIFICANCE
f_o	14 (35%)	23 (57.5%)	2 (5%)	1 (2.5%)	0	57.75
f_e	8	8	8	8	8	0.01

CHART – 1 THE COLOUR-COMBINATION OF THE PROGRAMME



At 0.01 significant level, the table value of χ^2 against 4 degree of freedom is 13.28. Here calculated value of χ^2 is greater than table value of χ^2 so, the null hypothesis is rejected.

Therefore, there is significant difference in expected and observed frequencies.

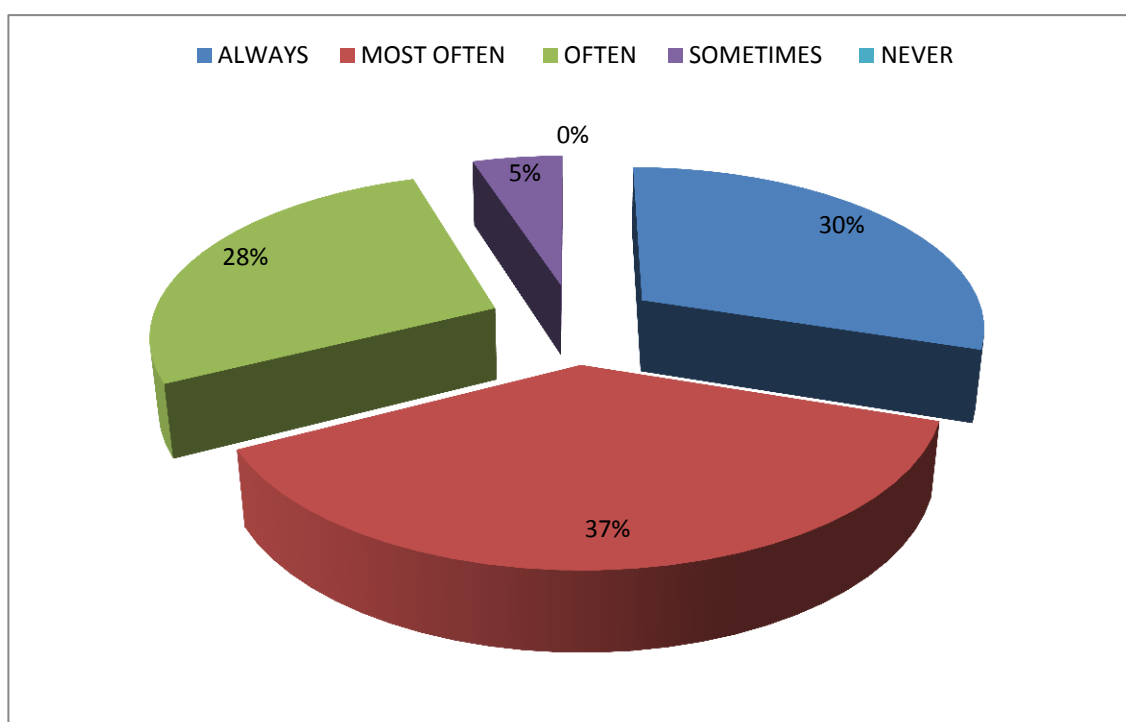
A large majority of respondents (57.5%) found colour - combination given in this programme suitable always whereas 35% found it always, 5% often and 2.5% found it sometimes.

STATEMENT-2 THE LEARNING OF MATHEMATICS BECOMES EASY THROUGH TECHNOLOGY

Table-3: Analysis of responses of students on STATEMENT-2

	ALWAYS	MOST OFTEN	OFTEN	SOMETIMES	NEVER	χ^2 AND LEVEL OF SIGNIFICANCE
f_o	12 (30%)	15 (37.5%)	11 (27.5%)	2 (5%)	0	21.75
f_e	8	8	8	8	8	

CHART: 2 THE LEARNING OF MATHEMATICS BECOMES EASY THROUGH TECHNOLOGY



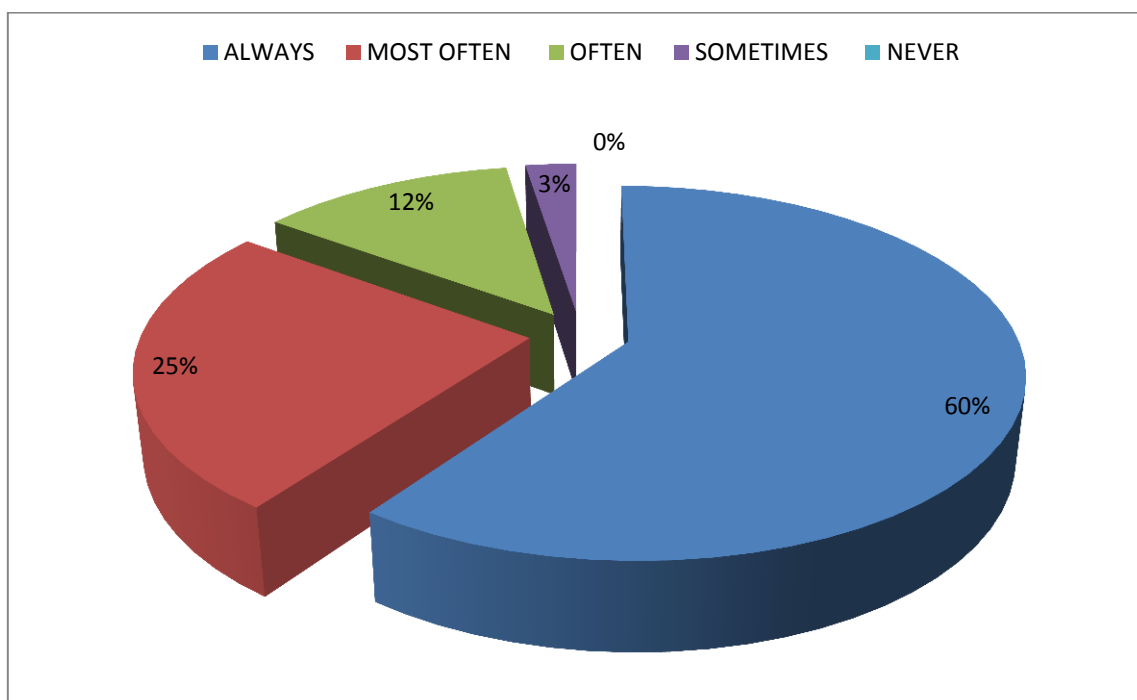
At 0.01 significant level the table value of χ^2 against 4 degree of freedom is 13.28. Here calculated value of χ^2 is greater than table value of χ^2 so, the null hypothesis is rejected. Therefore there is significant difference in expected and observed frequencies. A large majority of respondents 37.5 % found the learning of mathematics became easy through this programme and it was meaningful and helped understanding the concept 30 % always, 27.5 % often, when whereas 5 % found it sometimes.

STATEMENT-3 THE EXPLANATION GIVEN BY RESEARCHER FACILATED UNDERSTANDING

Table-4: Analysis of responses of students on STATEMENT-3

	ALWAYS	MOST OFTEN	OFTEN	SOMETIMES	NEVER	χ^2 AND LEVEL OF SIGNIFICANCE
f_o	24 (60%)	10 (25%)	5 (12.5%)	1 (2.5%)	0	47.75
f_e	8	8	8	8	8	0.01

**CHART – 3 THE EXPLANATION GIVEN BY RESEARCHER FACILATED
UNDERSTANDING**



At 0.01 significant level the table value of χ^2 against 4 degree of freedom is 13.28. here calculated value of χ^2 is greater than table value of χ^2 . So the null hypothesis is rejected.

Therefore there is significant difference in expected and observed frequencies.

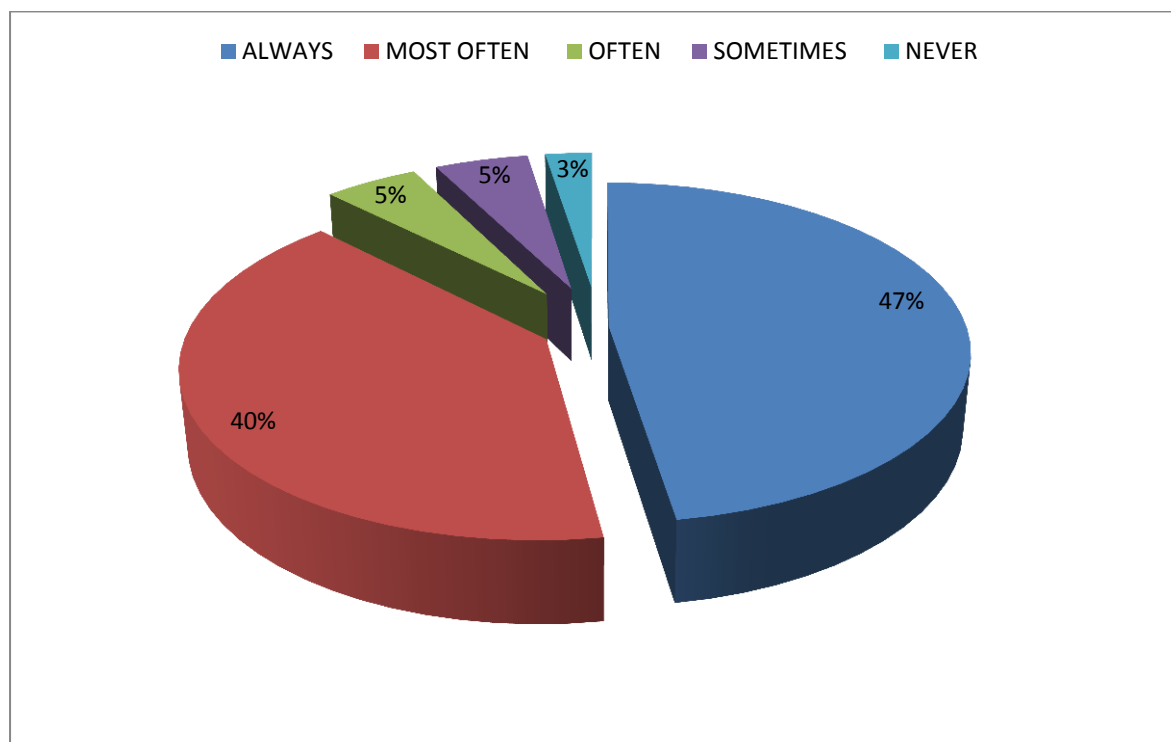
A large majority of respondents 60 % found the explanation given by researcher facilitated to students using this programme was meaningful and helped in understanding the concept always . 25% most often, 12.5 % often , when whereas 2.5 % found it sometimes.

STATEMENT-4 ANIMATION GIVEN IN THIS PROGRAMME WAS MEANINGFUL AND HELPED IN UNDERSTANDING THE CONCEPT

TABLE -5: Analysis of responses of students on STATEMENT-4

	ALWAYS	MOST OFTEN	OFTEN	SOMETIMES	NEVER	χ^2 AND LEVEL OF SIGNIFICANCE
f_o	19 (47.5%)	16 (40%)	2 (5%)	2 (5%)	1 (2.5%)	49.25
f_e	8	8	8	8	8	0.01

CHART: 4 ANIMATION GIVEN IN THIS PROGRAMME WAS MEANINGFUL AND HELPED IN UNDERSTANDING THE CONCEPT



At 0.01 significant level the table value of χ^2 against 4 degree of freedom is 13.28. Here calculated value of χ^2 is greater than table value of χ^2 . So, the null hypothesis is rejected.

Therefore there is significant difference in expected and observed frequencies.

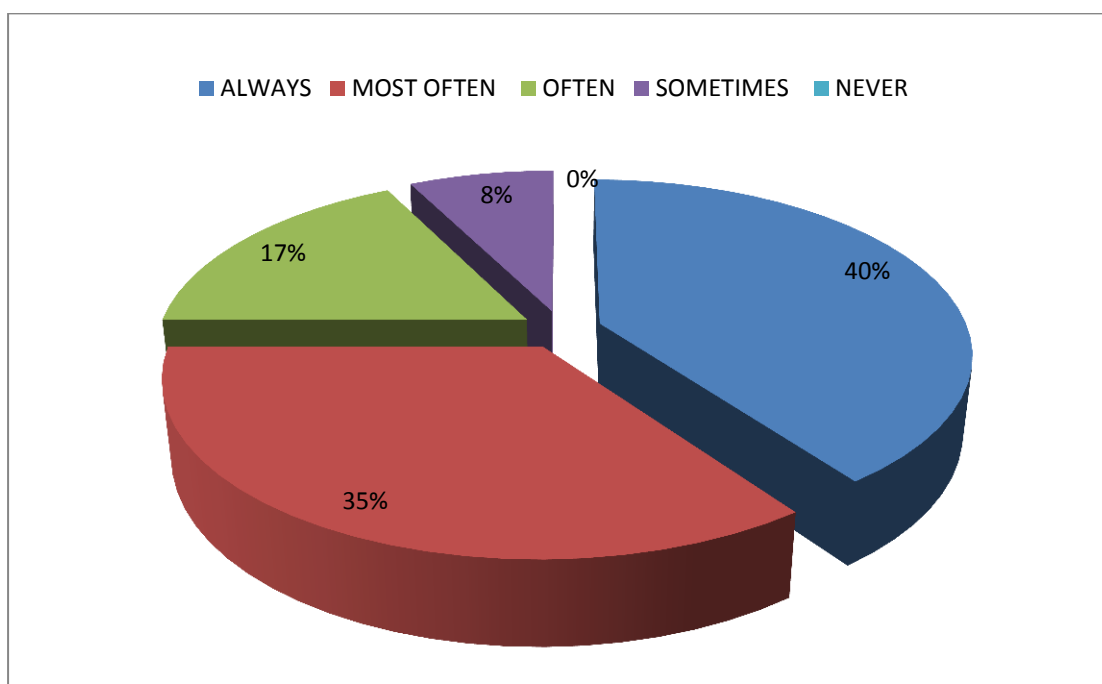
A large majority of respondents 60% found animation given in this programme was meaningful and helped in understanding the concept always. 37.5% most often, 5 % often when whereas 2.5 % found it sometimes.

STATEMENT - 5 THE INSTRUCTION GIVEN IN PROGRAMME WAS CLEAR

TABLE – 6 : Analysis of responses of students on STATEMENT-5

	ALWAYS	MOST OFTEN	OFTEN	SOMETIMES	NEVER	χ^2 AND LEVEL OF SIGNIFICANCE
f_o	16 (40%)	14 (35%)	7 (17.5%)	3 (7.5%)	0	23.75
f_e	8	8	8	8	8	0.01

CHART – 5 THE INSTRUCTION GIVEN IN PROGRAMME WAS CLEAR



At 0.01 significant level the table value of χ^2 against 4 degree of freedom is 13.28. Here calculated value of χ^2 is greater than table value of χ^2 . So, the null hypothesis is rejected.

Therefore there is significant difference in expected and observed frequencies.

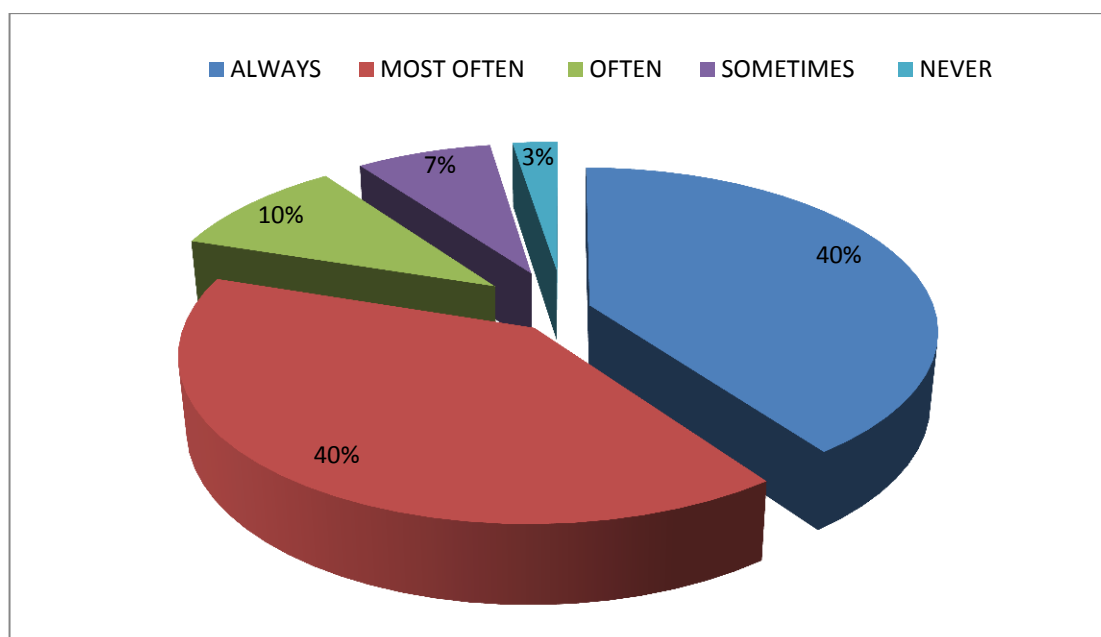
A large majority of respondents 40% found animation given in this programme was meaningful and helped in understanding the concept always .35% most often ,17.5%when whereas 7.5 % found it sometimes

STATEMENT-6 THERE SHOULD BE MORE SUCH TYPE OF PROGRAMME TO TRANSACT MATHEMATICAL CONCEPT

TABLE -7: Analysis of responses of students on STATEMENT-6

	ALWAYS	MOST OFTEN	OFTEN	SOMETIMES	NEVER	χ^2 AND LEVEL OF SIGNIFICANCE
f_o	16 (40%)	16 (40%)	4 (10%)	3 (7.5%)	1 (2.5%)	27.25 0.01
f_e	8	8	8	8	8	

CHART:6 THERE SHOULD BE MORE SUCH TYPE OF PROGRAMME TO TRANSACT MATHEMATICAL CONCEPT



At 0.01 significant level the table value of χ^2 against 4 degree of freedom is 13.28. Here calculated value of χ^2 is greater than table value of χ^2 . So, the null hypothesis is rejected. Therefore there is significant difference in expected and observed frequencies.

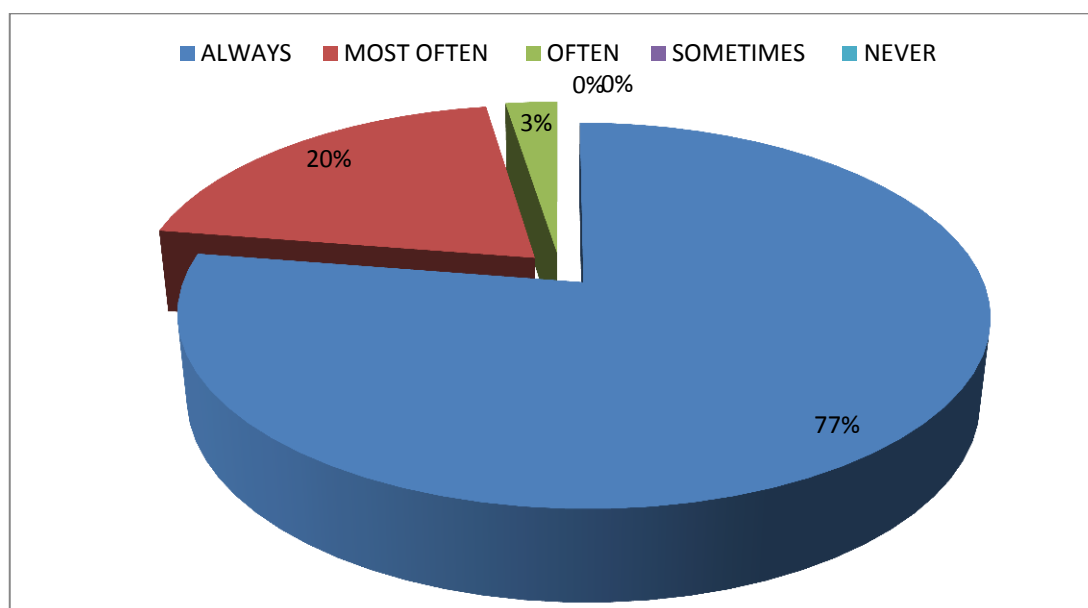
A large majority of respondents (66.67%) found animation given in this programme was meaningful and helped in understanding the concept always .24.24% most often, 6.06%when whereas 3.03 % found it sometimes.

**STATEMENT-7 LEARNING THROUGH THIS PROGRAMME WAS
JOYFUL AND GOOD EXPERIENCE**

TABLE – 8: Analysis of responses of students on STATEMENT-7

	ALWAYS	MOST OFTEN	OFTEN	SOMETIMES	NEVER	χ^2 AND LEVEL OF SIGNIFICANCE
f_o	31 (77.5%)	8 (20%)	1 (2.5%)	0	0	88.25
f_e	8	8	8	8	8	0.01

**CHART: 7 LEARNING THROUGH THIS PROGRAMME WAS JOYFUL
AND GOOD EXPERIENCE**



At 0.01 significant levels the table value of χ^2 against 4 degree of freedom is 13.28. Here calculated value of χ^2 is greater than table value of χ^2 . So, the null hypothesis is rejected.

Therefore there is significant difference in expected and observed frequencies.

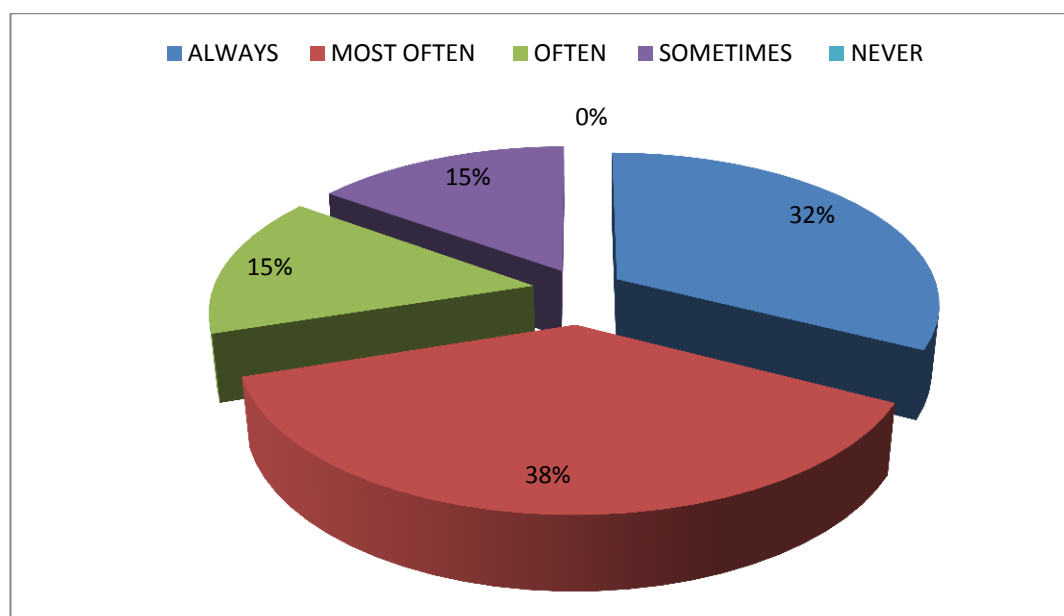
A large majority of respondents 77.5% found animation given in this programme was meaningful and helped in understanding the concept always. 20% most often, 2.5% often.

STATEMENT-8 THE LANGUAGE USED IN THE PROGRAMME WAS INTELLIGIBLE

TABLE – 9 :Aanalysis of responses of students on STATEMENT-8

	ALWAYS	MOST OFTEN	OFTEN	SOMETIMES	NEVER	χ^2 AND LEVEL OF SIGNIFICANCE
f_o	13 (32.5%)	15 (37.5%)	6 (15%)	6 (15%)	0	19.25
f_e	8	8	8	8	8	0.01

CHART:8 THE LANGUAGE USED IN THE PROGRAMME WAS INTELLIGIBLE



At 0.01 significant level the table value of χ^2 against 4 degree of freedom is 13.28. here calculated value of χ^2 is greater than table value of χ^2 . So, the null hypothesis is rejected. Therefore there is significant difference in expected and observed frequencies.

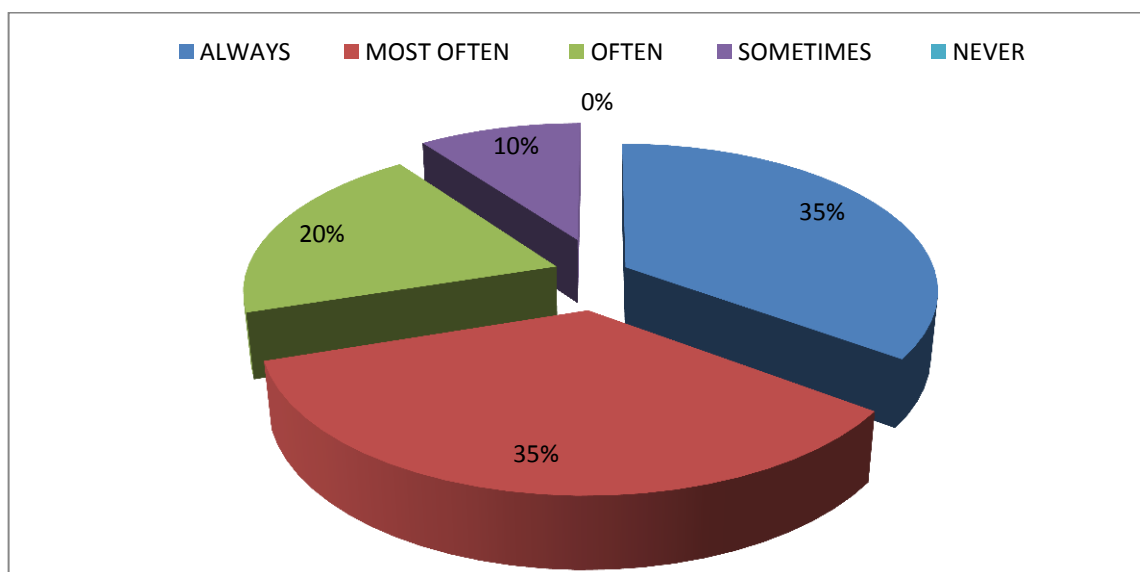
A large majority of respondents 37.5% found the language used in the programme was intelligible in this programme was meaningful and helped in understanding the concept most often. 32.5% always, 15 % often, when whereas 15% found it sometimes.

STATEMENT-9 THE FIGURE USED WERE APPROPRIATE AND RELEVANT

TABLE -10 : Analysis of responses of students on STATEMENT-9

	ALWAYS	MOST OFTEN	OFTEN	SOMETIMES	NEVER	χ^2 AND LEVEL OF SIGNIFICANCE
f_o	14 (35%)	14 (35%)	8 (20%)	4 (10%)	0	19
f_e	8	8	8	8	8	0.01

CHART – 9: THE FIGURE USED WERE APPROPRIATE AND RELEVANT



At 0.01 significant level the table value of χ^2 against 4 degree of freedom is 13.28. Here calculated value of χ^2 is greater than table value of χ^2 . So, the null hypothesis is rejected.

Therefore there is significant difference in expected and observed frequencies.

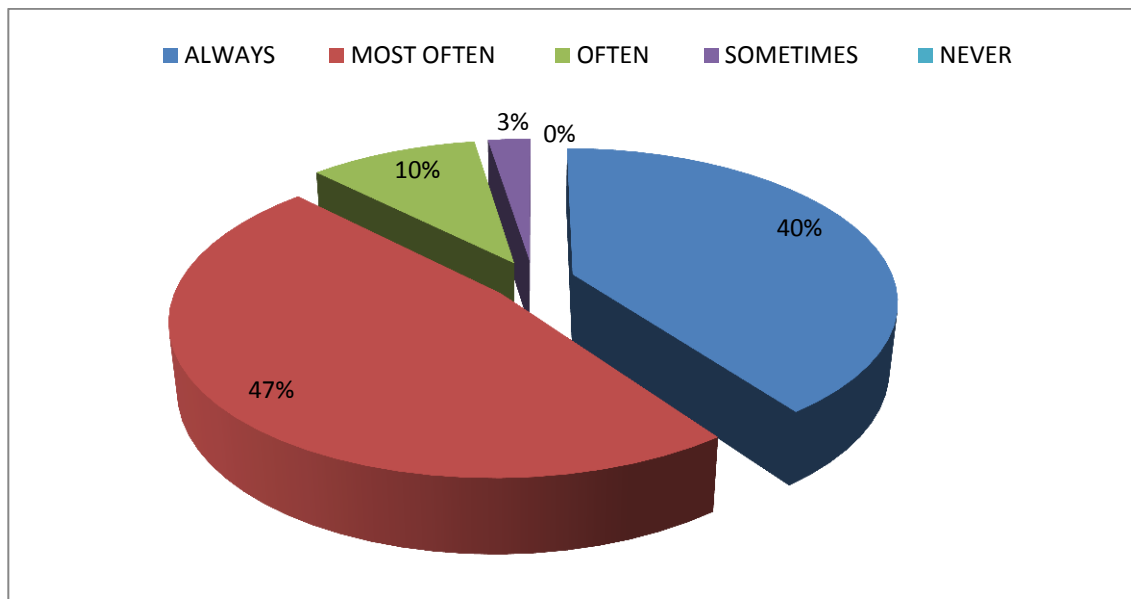
A large majority of respondents 35% found in figures used were appropriate and relevant in this programmed was meaningful and helped in understanding the concept always and most often. 20% often when whereas 10% found it sometimes.

STATEMENT-10 THERE WAS LOGICAL FLOW THROUGHOUT THE PROGRAMME

TABLE – 11 : Analysis of responses of students on STATEMENT-10

	ALWAYS	MOST OFTEN	OFTEN	SOMETIMES	NEVER	χ^2 AND LEVEL OF SIGNIFICANCE
f_o	16 (40%)	19 (47.5%)	4 (10%)	1 (2.5%)	0	39.25
f_e	8	8	8	8	8	0.01

CHART: 10 THERE WAS LOGICAL FLOW THROUGHOUT THE PROGRAMME



At 0.01 significant level the table value of χ^2 against 4 degree of freedom is 13.28. Here calculated value of χ^2 is greater than table value of χ^2 . So the null hypothesis is rejected.

Therefore there is significant difference in expected and observed frequencies.

A large majority of respondents 47.5% found in logical flow throughout the programme was meaningful and helped in understanding the concept most often .40% always ,10 % often when whereas 2.5 % found it sometimes.

4.3 CONCLUSION

After analyzing and interpreting the obtained data, the researcher found the significant difference in terms of the achievement of the students through CAP on Mathematics. Majority of the students had enjoyed learning with CAP. The students were of the opinion that colour combination, animated graphics, logical flow of chapters in CAP would enhance learning. The developed CAP was found to be effective in terms of achievement of students. Students had positive reactions toward CAP.