

CHAPTER – IV

ANALYSIS AND INTERPRETATION OF DATA

CHAPTER- IV

ANALYSIS AND INTERPRETATION OF DATA

4.1 Introduction-

In the chapter III, Research Procedure measurement of reliability and validity, calculation of norms, tools used etc have been explained.

The present chapter contains

Section A- Analysis of topics from the syllabus of Educational Technology.

Section B- Evaluation of the scale done by Expert- Teachers.

Section C- Method of item analysis and final Selection of items from pilot study.

Section - D- The testing of reliability of Attitude scale towards Educational Technology.

Section - E- Testing of hypotheses and calculation of norms.

Section -A Analysis of Topics from the syllabus of Educational Technology for B. Ed. course.

The syllabus of Educational Technology for B. Ed. course was analysed topic-wise following points were observed. (Appendix - A syllabus of Educational Technology. for B. Ed. course)

1. The first unit namely 'Educational Technology' in that topic concept and meaning of Educational Technology, Nature

and scope of Educational Technology, Functions, significance of Educational Technology are included.

2. The second unit 'Communication' consists of the concept and the process of communication, that can be possible form various media and instructional materials.

3. The Third unit 'System Approach to Instruction' is new for newly admitted B. Ed. student. The topic contains concept of system, implication of system approach, Instructional system designing.

4. The Fourth unit is 'The Resources of an instructional system', which is very important and useful unit. It contains hardware and software.

5. The fifth unit is about the 'Use of different media' which gives idea as how to teach by using proper media for proper unit. More effective the use of media, more effective will be the teaching of student teachers.

6. The sixth unit 'Management of Physical Resources'. The student teachers should know about care, maintenance of hardware, software, lay out of A. V. room. They are familiar with various audiovisual aids like television, video, video cassette recorder etc.

7. The seventh unit is 'Innovation in Educational Technology'. In this unit recent innovations T. V., Video, Computer, multimedia packages are included which gives recent knowledge to student teachers.

8. The Eighth unit is 'Programmed learning'. It contains concepts, characteristics, importance, and administration of programmed learning.

9. The Ninth unit is 'Educational Technology'. It deals with the sub unit as teacher as a change agent. This unit is about Educational Technology and the activities of good Educational Technology teachers.

After studying the syllabus of Educational Technology items were constructed as per contents of chapter. The items were very simple for the student teachers to understand. In the scale, care was taken to select 50 % positive and 50% negative attitude items.

Section- B : Evaluation of the scale has done by Expert Teachers.

Attitude scale containing 120 items was given to six expert teachers. List of expert teachers is given in appendix -C. Questions for evaluation of the scale are included in appendix- B.

The scale filled by experts were collected and analysed. The percentage of statements according to experts was taken into account and scale was specified by taking suggestions of the experts into consideration. The tentative tabulation is given in Table.IV-1.

TABLE. IV-1 : Evaluation of the scale done by Expert-Teachers.

Sr No	Discription	Positive response	%	Negative response	%	Total
1	Syllabus oriental statements	6	100	--	--	100%
2	Fulfillment for Total number of statements in scale	6	100	--	--	100%
3	Statement showing Attitude	5	83	1	17	100%
4	Construction of statements	5	83	1	17	100%
5	Distribution of the statements showing positive and negative attitude in the scale	6	100	--	--	100%
6	Accommodation of wards related with Educational Technology	4	66	2	34	100%
7	Validity of the statements at first stage	5	83	1	17	100%
8	General view about the scale	5	83	1	17	100%

1] Syllabus oriented statements- All experts agreed that the statements selected were related to the syllabus of the Educational Technology for B. Ed. course.

2] Fulfillment for total number of statements in the scale- Total 120 items were given to expert teachers to finalize for standardizing the scale All expert teachers agreed with the total number of statements included in the scale.

3] Statement showing attitude- As it is attitude measuring scale, the activity, contents, items included in the statements were based on attitude towards Educational Technology. But 17% expert teachers suggested to rearrange the content of tick marked statements.

4] Construction of statements accurate and meaningful-The statements constructed were very simple for the student teachers to understand, because student teachers were having various field backgrounds. According to experts evaluation, 17% statements were not clear for their meaning so these statements, were rearranged, changed accordingly with the help of experts suggestions.

5] Distribution of statements showing positive attitude and negative attitude in the scale- All the experts 100% agreed with 50% positive attitude statements and 50 % negative attitude statements in the scale. One expert gave suggestions about arrangement of positive and negative statements in the scale. The sequence of positive and negative statement in the scale required being random and this was implemented for maintaining the sequence.

6] Accommodation of words related with educational technology.

All the experts evaluated 34% statements of the scale and pointed out that the words used were related to Educational Technology which were not known to student teachers. Student teachers were not acquainted with these type of words and their meanings therefore these words were deleted from the statement and similar, alternate, suitable words were used in the place of

marked ward. For this few statements were rearranged for their proper meaning.

7] Validity of statements at first stage- All the experts evaluated 83% statements having proper validity for scale and 17% statements were not found valid. These marked statements were reformed as per remarks, suggestions given by experts and re-evaluated with the help of guide and then finalised for including in the scale.

8] General view about the scale- The experts highly appreciated the scale for its application. Experts found 83% good and they marked 17% as satisfactory.

Section-C: Method of item analysis and final selection of items from pilot study.

The tryout was given to randomly selected 30 student teachers. The Xeroxed scale including 120 items was given to student teachers with answer sheets, the required time limit was found to be about 45 minuets. Answer sheets of the student teachers were checked with the help of scoring keys. The list of scores was prepared separately. The student teachers were arranged according to merit in descending order. Twenty-seven per-cent of upper answer sheets, having high score and twenty-seven per-cent teachers of lowest scoring answer sheets were taken in to account. Percentage of corrects responses from upper and lower groups for each statement were calculated by tabulating number of responses. Using Flanagan's table validity index for each statement was determined.

The views of student teachers about scale, the space provided for suggestions along with answersheet, i. e about language, understanding of statement, etc. The statement having validity index 0.20 and above were taken for final draft with proper correction and remaining statements having zero, negative validity index were deleted.

The statement numbers, their percentage in upper and lower group and validity index is given in table. IV-2.

TABLE. IV-2. Validity index of items.

Item No.	% right in the top 27%	% right in bottom 27%	Validity Index	Accepted or rejected
01	62	38	0.25	A
02	75	50	0.27	A
03	87	50	0.44	A
04	62	38	0.25	A
05	62	38	0.25	A
06	75	38	0.38	A
07	50	25	0.25	A
08	75	25	0.50	A
09	50	13	0.41	A
10	62	38	0.25	A
11	50	50	0.00	R
12	75	38	0.38	A
13	50	25	0.25	A
14	75	50	0.27	A
15	50	13	0.41	A
16	87	25	0.62	A
17	62	75	-0.15	R

Item No.	% right in the top 27%	% right in bottom 27%	Validity Index	Accepted or rejected
18	62	62	0.00	R
19	100	87	0.35	A
20	75	50	0.27	A
21	62	25	0.38	A
22	75	62	0.15	R
23	87	62	0.32	A
24	62	25	0.38	A
25	100	87	0.35	A
26	100	87	0.35	A
27	75	38	0.38	A
28	50	38	0.13	R
29	75	38	0.38	A
30	75	50	0.27	A
31	38	38	0.00	R
32	100	75	0.50	A
33	100	62	0.61	A
34	87	62	0.32	A
35	100	50	0.68	A
36	38	50	-0.14	R
37	100	13	0.85	A
38	75	25	0.50	A
39	100	50	0.68	A
40	100	75	0.50	A
41	87	38	0.53	A
42	50	50	0.00	R
43	100	87	0.35	A
44	100	75	0.50	A
45	50	38	0.13	R

Item No.	% right in the top 27%	% right in bottom 27%	Validity Index	Accepted or rejected
46	87	13	0.72	A
47	75	38	0.38	A
48	87	25	0.62	A
49	100	87	0.35	A
50	75	25	0.50	A
51	75	38	0.38	A
52	87	13	0.72	A
53	87	38	0.53	A
54	62	62	0.00	R
55	62	38	0.25	A
56	87	50	0.44	A
57	62	38	0.25	A
58	75	38	0.38	A
59	75	25	0.50	A
60	50	13	0.41	A
61	62	38	0.25	A
62	75	38	0.38	A
63	50	25	0.25	A
64	75	50	0.27	A
65	62	62	0.00	R
66	50	13	0.41	A
67	87	50	0.44	A
68	62	38	0.25	A
69	75	38	0.38	A
70	75	25	0.50	A
71	100	25	0.79	A
72	62	38	0.25	A
73	62	50	0.13	R

Item No.	% right in the top 27%	% right in bottom 27%	Validity Index	Accepted or rejected
74	87	13	0.72	A
75	62	25	0.38	A
76	87	62	0.32	A
77	75	25	0.50	A
78	87	50	0.44	A
79	62	38	0.25	A
80	38	50	-0.14	R
81	50	25	0.25	A
82	75	50	0.27	A
83	50	13	0.41	A
84	62	62	0.00	R
85	100	87	0.35	A
86	62	25	0.38	A
87	100	62	0.61	A
88	75	38	0.38	A
89	50	38	0.13	R
90	75	25	0.50	A
91	75	38	0.38	A
92	87	25	0.62	A
93	38	38	0.00	R
94	87	13	0.72	A
95	62	38	0.25	A
96	75	38	0.38	A
97	62	25	0.38	A
98	50	38	0.13	R
99	62	38	0.25	A
100	38	38	0.00	R
101	87	62	0.32	A

Item No.	% right in the top 27%	% right in bottom 27%	Validity Index	Accepted or rejected
102	100	87	0.35	A
103	75	50	0.27	A
104	75	50	0.27	A
105	38	50	-0.14	R
106	75	38	0.38	A
107	50	25	0.25	A
108	75	25	0.50	A
109	100	75	0.50	A
110	75	38	0.38	A
111	87	38	0.53	A
112	50	50	0.00	R
113	100	50	0.68	A
114	87	62	0.32	A
115	50	13	0.41	A
116	75	50	0.27	A
117	75	38	0.38	A
118	62	38	0.25	A
119	75	50	0.27	A
120	50	25	0.25	A

A- Accepted item R- Rejected item

Observations-

TABLE. IV-3. Validity index of accepted items.

Range of validity index	No of items
0.81 - 1.00	1
0.61 - 0.80	13
0.41 - 0.60	25
0.20 - 0.40	61
Total	100

TABLE. IV-4. Validity Index of rejected items.

Range of validity index	No of items
0.1 - 0.15	6
- 0.15 - 0.0	14
Total	20

From the table.IV-3. it was observed, there were 61 items having validity index in the range 0.20 - 0.40, and 25 items having validity index in the range 0.41 - 0.61 and only one item has validity index in the range 0.81 - 1.00.

From table.IV-4, it was observed there were 14 items having validity index in the range -0.15 - 0.0 and 6 items having validity index in the range 0.1 - 0.15.

Items with validity index of 0.20 or more are regarded as satisfactory. Items having zero validity index are irrelevant or invalid and items having negative validity index must be discarded. So in attitude scale out of 120 items, 20 items were rejected, and so deleted. There were 100 items selected for final attitude scale.

Section D: The testing of Reliability of attitude scale towards Educational Technology.

After selecting the items from opinions of experts and the tryout, the scale was reconstructed and administered to four hundred student teachers as per details below.

TABLE.IV-5. : Distribution of student teachers, collegewise in sample.

College	No. of student teachers
1] Azad college of education, Satara.	-150
2] College of education, Karad.	-070
3] B.Ed. College , Patan.	-070
4] College of education Phaltan.	-070
5] Yeshwantrao Chavan Maharashtra Open University, Nasik	-040

The test was given twice after the period of twenty days. for each college reliability coefficient were calculated. The coefficients of correlation were calculated by using Pearson's product movement formula.

$$r = \frac{\frac{\sum x'y'}{N} - C_x C_y}{\sigma x' \sigma y'}$$

The terms involved in the formula are explained in the chapter III.

The tables for calculating correlation coefficients for each college are enclosed in appendix (E,F,G,H,I,J,K) with score lists of student teachers. The reliability coefficients found in each college are as below.

TABLE.IV-6. Reliability coefficients of colleges.

Sr. No.	College	Reliability coefficient
1	Azad College of Education, Satara	0.94
2	College of Education, Karad	0.89
3	B. Ed. College, Patan.	0.95
4	College of Education, Phaltan	0.92
5	Y. C. M. Open University, Nasik	0.87
	Y.C.M. Open University, Nasik(split up)	0.99

From the above table it was found that the reliability coefficient of colleges on attitude scale were 0.87 to 0.99. The related values of coefficient of correlation should be 0.80 or above. (संदर्भ-चा. प. कदम, बी. ए. चौधरी, १९९२, शैक्षणिक मूल्यमापन.पृ.पृ. १२४.) so from above table it can be observed that all reliability coefficients were found higher. Hence it can be said that the attitude scale is reliable.

Section- E : Testing of hypothesis and calculation of norms.

The hypothesis stated by the researcher were tested by calculating means for each sample i.e. for female student-teachers, male- student teachers, urban area student-teachers, rural area student teachers, regular student teachers, and open university students teachers.

The means and standard deviation of each sample from above groups were calculated by the formula.

1) Mean (M) =

$$M = \frac{\sum f \cdot Xm}{N}$$

2) Standard deviation =

$$\sigma = ix \sqrt{\frac{\sum fd^2}{N} - c^2}$$

where

$$c = \frac{\sum fd}{N}$$

One calculation of means of and standard deviations for information is given here. Thus the means for total score and means for score for each college were calculated and tabulated in respective tables.

TABLE.IV-7. Means and standard deviations of student teachers from College of Education, Karad.(Urban area)

Class interval	Mid point	freq .f	cum freq C_f	d'	d' ²	f.d'	f.d' ²	f.Xm
381-400	390.5	2	70	4	16	8	32	781.0
361-380	370.5	5	68	3	09	15	45	1852.5
341-360	350.5	6	63	2	04	12	24	2103.0
321-340	330.5	21	57	1	1	21	21	6940.5
301-320	310.5	24	36	0	0	0	0	7452.0
281-300	290.5	12	12	-1	1	-12	12	3486.0
Total-		70				44	134	22615

$$\sigma_{Mean} = \frac{\sum f \cdot X_m}{N} = \frac{22615}{70} = \sigma 323.0$$

Standard deviation

$$\begin{aligned} \sigma &= ix \sqrt{\frac{\sum f \cdot d'^2}{N} - c^2} \\ &= 20 \times \sqrt{\frac{134}{70} - (0.626)^2} \end{aligned}$$

$$\sigma = 24.65$$

Hypothesis H-1.0. There is no significant difference between the attitude of female student teachers and male student teachers towards Educational Technology.

The calculation for 't' value was done by taking following data into account.

TABLE.IV-8. Means and standard deviations for Female and Male student teachers.

Group	Number of student teachers	Mean 'M'	Standard Deviation 'σ'	Difference between Means of female & male student teachers 'D'
Female Student teachers	179	330.86	38.80	17.7
Male students teachers	221	313.16	44.26	

One calculation for information about Mean and Standard deviation is given previously The σ_D value was calculated by formula.

$$\sigma_D = \sqrt{\frac{\sigma_f^2}{N_1} + \frac{\sigma_m^2}{N_2}}$$

Where

σ_f - Standard deviation for female student teachers.

σ_m - Standard deviation for male student teachers

N_1 - Number of female student teachers

N_2 - Number of male student teachers.

$$\sigma_D = \sqrt{\frac{(38.80)^2}{179} + \frac{(44.26)^2}{221}}$$

$$\sigma_D = \sqrt{8.41 + 8.86}$$

$$\sigma_D = \sqrt{17.27}$$

$$\sigma_D = 4.16$$

't' value =

$$\frac{D}{\sigma_D} = \frac{17.7}{4.16} = 4.26$$

The calculated 't' value is 4.26

for df 398 ((179-1) [221-1]) and from table D the values of significance at 0.05 and 0.01 levels are

0.05 level = 1.97

calculated 't' value = 4.26

0.01 level = 2.59

Observation-

The calculated 't' value was significant at 0.01 levels of significance.

Finding-

It can be concluded that there was significant difference between the attitude of female students teachers and male student teachers towards educational technology. It means the hypothesis H-1.0 stated by researcher was rejected.

It seems female have favourable attitude towards Educational Technology comparatively they like the Educational Technology more than the male student teachers.

The graphical representation is shown in graph. Fig. IV-1.

Calculation of Norms.

As from the calculated 't' value, significant difference was found in female & male student teachers, the norms were calculated separately for both groups by calculating percentile. Sample calculations are given below, further Norms calculations are similar as per given sample and all norms are given in the related groups in the form of the table.

Formula

$$P_p = L + \frac{\frac{(PN)}{100} - F}{f} \times i$$

Calculation of Norms for female group

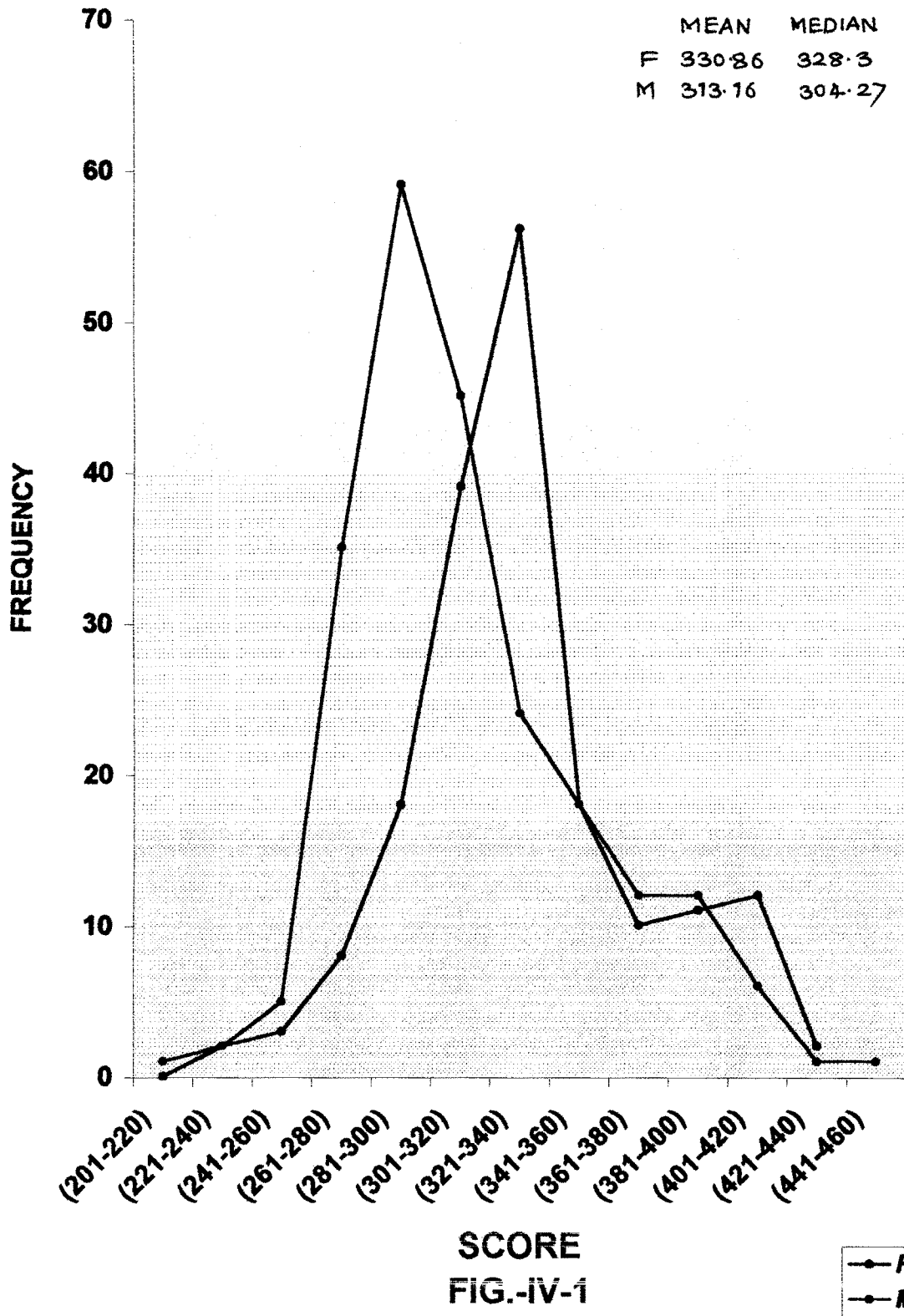
$$P_4 = 260.5 + \frac{\frac{(4 \times 179)}{100} - 5}{8} \times 20$$

$$= 265.9$$

TABLE.IV-9. Norms for female and male student teachers.

Stanine	percentile	Score	
		female student teacher	male student teacher
1	P ₄	266	261
2	P ₁₀	286	269
	P ₁₁	288	270
3	P ₂₀	303	281
	P ₂₃	306	283
4	P ₂₅	308	285
	P ₃₀	312	288
	P ₄₀	321	296
5	P ₅₀	327	304
	P ₆₀	334	314
6	P ₇₀	340	327
	P ₇₅	350	336
	P ₇₇	354	340
7	P ₈₀	360	347
	P ₈₉	390	373
8	P ₉₀	393	377
	P ₉₅	409	395
	P ₉₆	412	399
9	P ₉₉	423	420

FEMALE STUDENT TEACHERS & MALE STUDENT TEACHERS



H-1.0 - Graph of score of total female and total male student teachers. fig.IV-1.

Observation and Interpretation:

1. Distribution for scores of female and male student teachers are skewed positively or to the right. Scores are massed at the low (or left) end of the scale, and are spread out gradually toward the high or right end.
2. The calculated mean for female and male student teachers are 330.86 and 313.16 respectively. These means lies to the right of the median. Calculated Median for female and male are 328.3 and 304.27.
3. The gap between mean and median of the female student teachers in less on compared to male student teachers, before the skews of distribution of female student teachers is less than the male student teacher.
4. The value of difference between mean and median, for distribution of female student teacher is comparatively less, there fore distribution approaches to the normal form.
5. The scores of female student teachers are spread from 220 to 440 and that of male student teachers are spread from 201-460.
6. A frequency distribution of male student teachers more picked then the female student teachers, this pickedness is said to be leptokurtic as compared to female student teachers.
7. The female group seems more homogeneous as compared with male group.

Hypothesis-H-2.0. There is no significant difference between the attitude of urban area student teachers and rural area student teachers towards Educational Technology.

For testing of above hypothesis the frequency distribution table from scores of urban and rural area colleges were prepared and means and standard deviations for each group were calculated.

TABLE.IV-10. Means and standard deviations for Urban and Rural area college student teachers.

Group	Number of student teachers	Mean 'M'	Standard Deviation σ	Difference between Means of urban & rural student teachers 'D'
Urban area college Student teachers	220	329.70	47.15	18.1
Rural area college students teachers	140	311.6	48.63	

From the above data the value of σ_D calculated was 5.20

Hence 't' value

$$= \frac{18.1}{5.20} = 3.48$$

for d_f 358 the values at 0.05 and 0.01 levels are

0.05 level = 1.97

Calculated 't' value = 3.48

0.01 level = 2.59

Observation

The calculated 't' value was significant at 0.01 level of significance.

Findings

It can be concluded that there was significant difference between the attitude of urban area college students teachers and Rural area college students teachers towards Educational Technology.

It means hypothesis H-2.0 stated by the researcher was rejected. It seems urban area student teachers have favourable attitude towards Educational Technology comparatively they like the Educational Technology more than the rural student teachers.

The graphical representation is shown in graph. fig. IV-2.

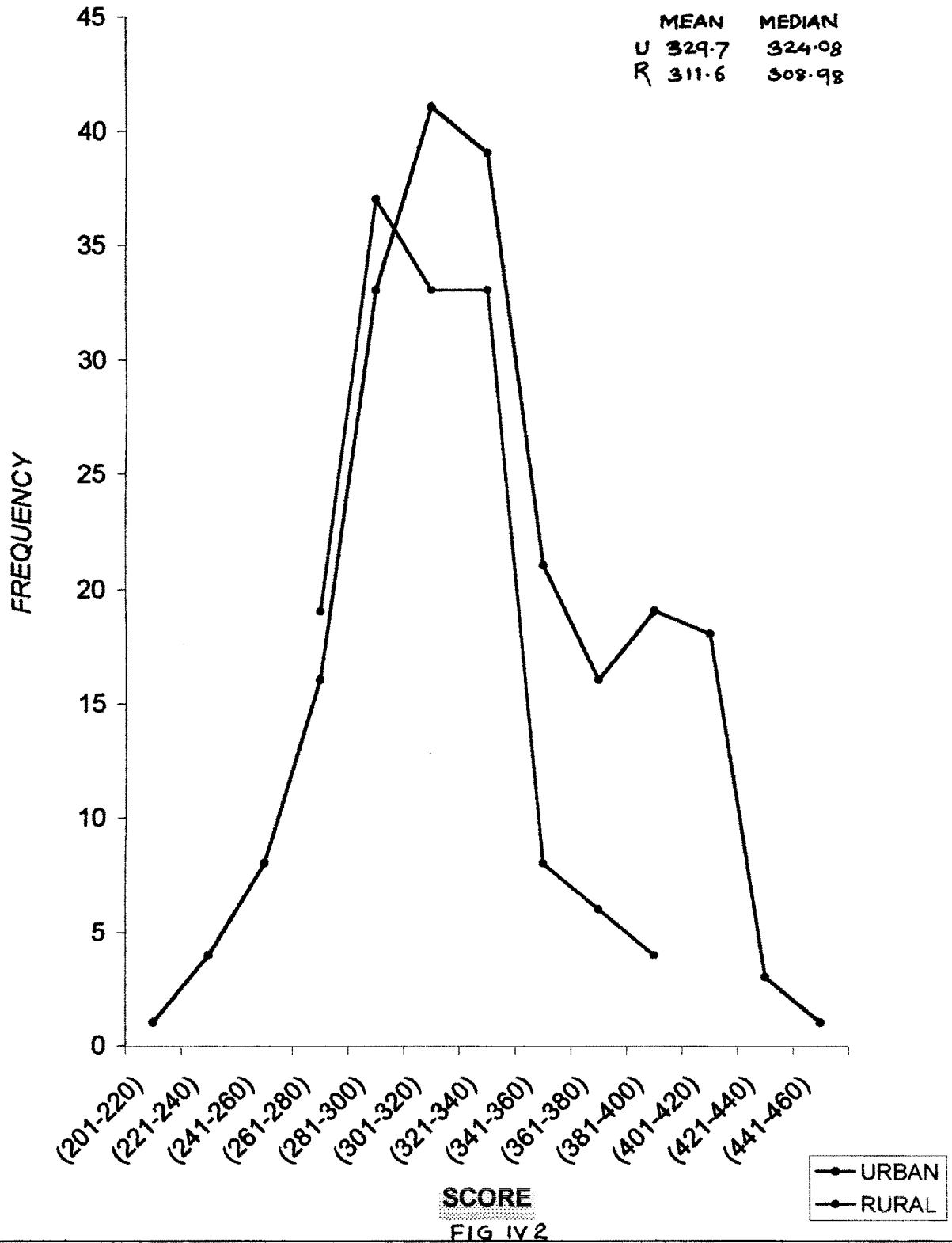
Calculation of norms-

As the significant difference was found in scores of urban and rural area student teachers, separate norms calculated for each group and tabulated in the table.

TABLE-IV-11. Norms for urban and rural area college student teachers.

Stanine	percentile	Score	
		Urban student teachers	Rural student teachers
1	P ₄	253	266
2	P ₁₀	273	275
	P ₁₁	276	277
3	P ₂₀	276	285
	P ₂₃	293	288
4	P ₂₅	296	289
	P ₃₀	303	293
	P ₄₀	314	301
5	P ₅₀	325	309
	P ₆₀	337	317
6	P ₇₀	350	326
	P ₇₅	362	330
	P ₇₇	368	332
7	P ₈₀	376	334
	P ₈₉	397	347
8	P ₉₀	399	351
	P ₉₅	414	371
	P ₉₆	417	375
9	P ₉₉	432	394

URBAN STUDENT TEACHERS & RURAL STUDENT TEACHERS



H.2.0. Graph of scores of Urban student teachers and rural student teachers.

Observations and Interpretation.

1. Distribution for scores of urban and rural student teachers are skewed positively or to the right.

Scores are massed at the low/left end of the scale, and are spread out gradually toward the high or right end.

2. The calculated mean for urban and rural student teachers are 329.70 and 311.60 respectively. These means lie to the right of the median.

Calculated median for urban and rural student teachers are 324.08 and 308.98.

3. The gap between mean and median of the rural student teachers is less as compared to urban student teachers, therefore the skewness of distribution of rural student teacher is less than urban student teachers.

4. The scores of urban student teachers are spread from 201-460 and that of rural student teachers are spread from 261-400.

5. A frequency distribution of urban student teachers, is more peaked than the rural student teachers this peakedness is said to be 'leptokurtic'.

6. The rural group seems more homogeneous as compared with urban group.

Hypothesis-H-2.1. There is no significant difference between the attitude of urban area female student teachers and rural area female student teachers towards Educational Technology.

The calculation for 't' value was done by taking following data into account.

TABLE-IV-12. Means And standard deviations for urban and rural area female student teachers.

Group	Number of student teachers	Mean 'M'	Standard Deviation σ	Difference between Means of urban & rural female student teachers 'D'
Urban area female Student teachers	106	335.03	46.56	6.79
Rural area female students teachers	53	328.24	21.82	

From the above data the value of σ_D calculated was 5.42

Hence 't' value

$$= \frac{6.79}{5.42} = 1.25$$

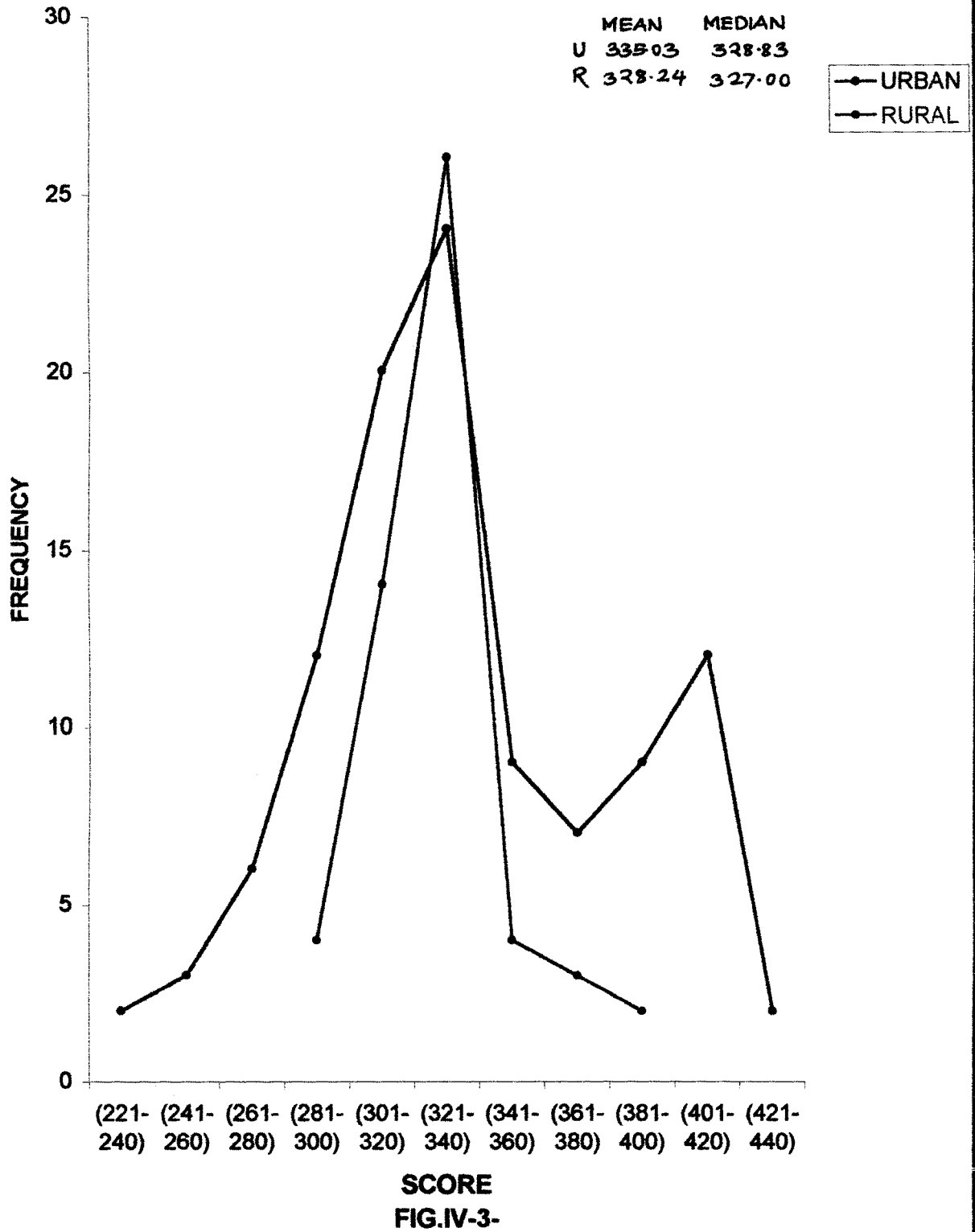
for d_f 157 the values at 0.05 and 0.01 levels are

0.05 level = 1.97

Calculated 't' value = 1.25

0.01 level = 2.60

URBAN FEMALE STUDENT TEACHERS & RURAL FEMALE STUDENT TEACHERS



Observation -

The calculated 't' value was not significant at 0.01 level of significance.

Finding

It can be concluded that there was no significant difference between the attitude of urban area female student teachers and rural area female student teachers. It means hypothesis H-2.1 stated by the researcher was accepted.

It means urban and rural area females have similar attitude towards Educational Technology.

The graphical representation is shown in Graph. fig. IV-3.

H-2.1. Graph of scores of urban female student teacher, Rural female student teacher.

Observations and Interpretation

1. Distribution for scores of urban and rural female student teachers are skewed positively or to the right. Scores are massed at the low/left end of the scale and are spread out gradually towards the high or right end.

2. The calculated mean for urban and rural female student teachers are 335.03 and 328.24 respectively. These means lie to the right of the median. Calculated median for urban and rural female student teachers are 328.83 and 327.00.

3. The gap between mean and median of the rural female student teachers is less as compared to urban female student teacher, therefore the skewness of distribution of rural female student teacher is less than urban female student teachers.
4. The scores of urban female student teachers are spread from 221-440 that of rural student teachers are spread from 281-400.
5. The achievement score of urban female student teachers and rural female student teachers have a slight difference in distribution so they both the groups are homogeneous having same attitude.

Hypothesis-H-2.2. There is no significant difference between the attitude of urban area male student teachers and rural area male student teachers towards Educational Technology.

The calculation of 't' value was done by taking following data into account.

TABLE.IV-13. Means and standard deviations for urban and rural area male student teachers.

Group	Number of student teachers	Mean 'M'	Standard Deviation σ	Difference between Means of urban & rural area male student teachers D
Urban area male Student teachers	114	324.53	47.60	23.53
Rural area male student teachers	87	301	28.27	

from the above data the value of σ_D calculated was 5.39

Hence 't' value

$$= \frac{23.53}{5.39} = 4.36$$

For d_f 199 the values at 0.05 and 0.01 levels are

0.05 level = 1.97

calculated 't' value = 4.36

0.01 level = 2.60

Observation-

The calculated 't' value was significant at 0.01 level of significance.

Finding-

It can be concluded that there was significant difference between the attitude of urban area male student teachers and rural area male student teachers towards Educational Technology.

It seems urban area male student teachers have favourable attitude towards Educational Technology. Urban area male student teachers like the Educational Technology more than the rural area male student teachers.

The graphical representation is shown in graph. fig. IV-4.

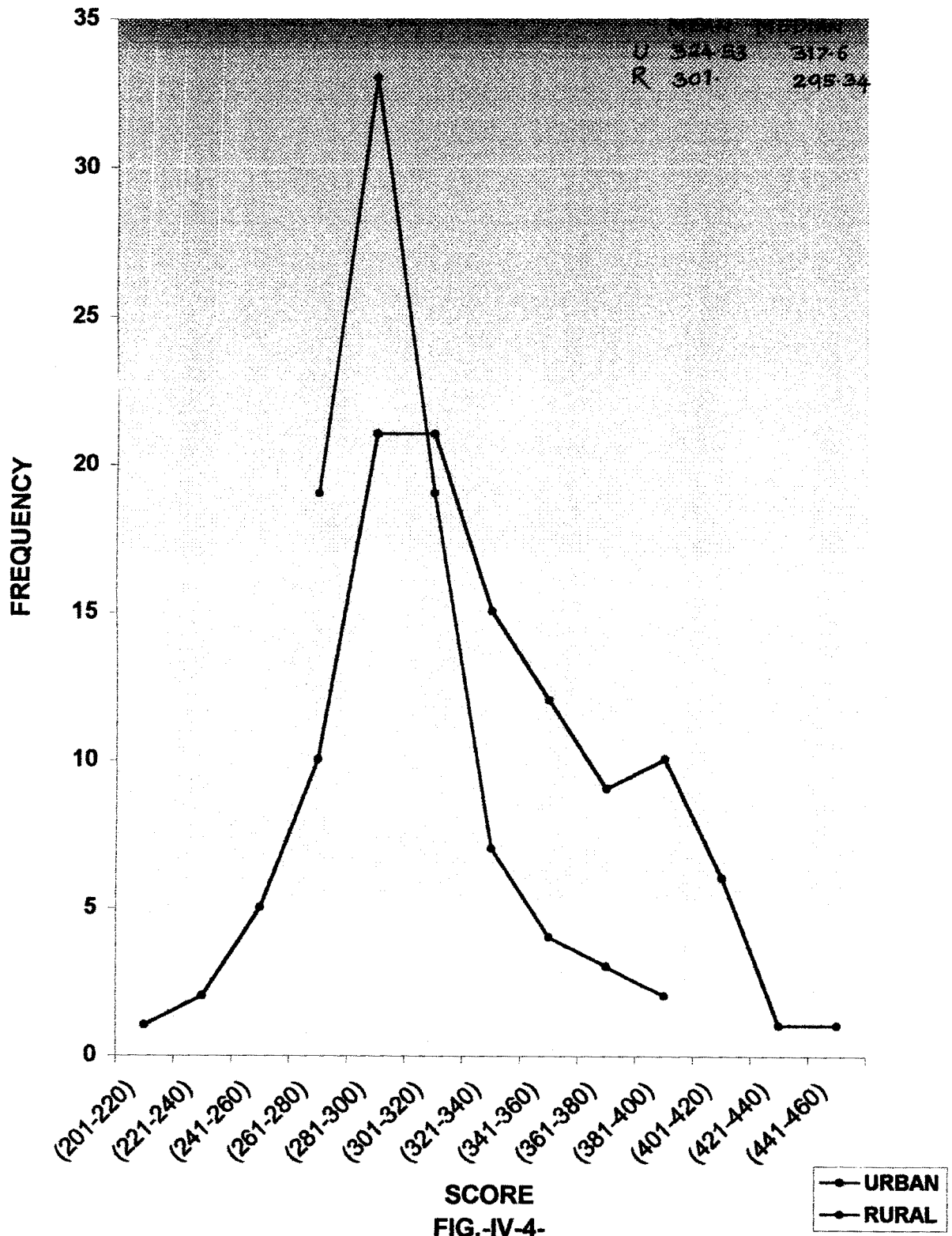
Calculation of Norms

As the significant difference was found in scores of urban area and rural area male student teacher, separate norms were calculated.

TABLE.IV-14. Norms for urban and rural area male student teachers.

Stanine	percentile	Score	
		Urban male student teachers	Rural male student teachers
1	P ₄	247	264
2	P ₁₀	267	270
	P ₁₁	270	271
3	P ₂₀	285	279
	P ₂₃	288	281
4	P ₂₅	291	282
	P ₃₀	296	285
	P ₄₀	307	290
5	P ₅₀	318	295
	P ₆₀	332	301
6	P ₇₀	349	310
	P ₇₅	358	314
	P ₇₇	362	316
7	P ₈₀	370	319
	P ₈₉	391	339
8	P ₉₀	394	342
	P ₉₅	408	365
	P ₉₆	412	371
9	P ₉₉	438	392

ARBAN MALE STUDENT TEACHERS & RURAL MALE STUDENT TEACHERS



SCORE
FIG.-IV-4-

H-2.2. Graph of scores of urban male student teacher, rural male student teachers.

Observations and Interpretation:

1. Distribution for scores of urban male student teachers and rural male student teachers are skewed positively or to the right scores are massed at the low/left end of the scale and are spread out gradually toward the high or right end.

2. The calculated mean for urban male student teacher and rural male student teachers are 324.53 and 301.00 respectively. These means lie to the right of the median.

Calculated median for urban male and rural male are 317.60 and 295.34.

3. The gap between mean and median of the rural male student teachers is less as compared to urban male student teachers. Therefore the skewness of distribution of rural male student teachers is less than the urban student teachers.

4. The score of urban male student teachers are spread from 201 to 460 and that of rural male student teachers 261 - 400.

5. The frequency distribution of rural male student teachers is more peaked than the urban male student teachers. This peakedness is said to be 'Leptokurtic' as compared to urban male student teachers.

6. The rural male student group seems more homogeneous as compared with urban male student group.

Hypothesis-H-3.0. There is no significant difference between the attitude of regular student teachers and distance education student teachers towards Educational Technology.

The calculation for 't' value was done by taking following data into account.

TABLE.IV-15. Means And standard deviations for regular and distance education student teachers.

Group	Number of student teachers	Mean 'M'	Standard Deviation σ	Difference between Means of regular & distance education student teachers.D
Regular Student teachers	360	322.61	43.56	12.86
Dist. education student teachers	40	309.75	27.73	

from the above data the value of σ_D calculated was 4.94

Hence 't' value

$$= \frac{12.86}{4.94} = 2.60$$

For d_f 398 the values at 0.05 and 0.01 levels are

0.05 level = 1.97

calculated 't' value = 2.60

0.01 level = 2.59

Observation-

The calculated 't' value was significant at 0.01 level of significance.

Finding-

It can be concluded that there was significant difference between the attitude of regular student teachers and distance education student teachers towards Educational Technology. It means hypothesis H-3.0 stated by the researcher was rejected.

It seems Regular student teachers have favorable attitude towards Educational Technology, comparatively they like the Educational Technology more than the Distance education student teachers.

The graphical representation is shown in graph. fig. IV-5.

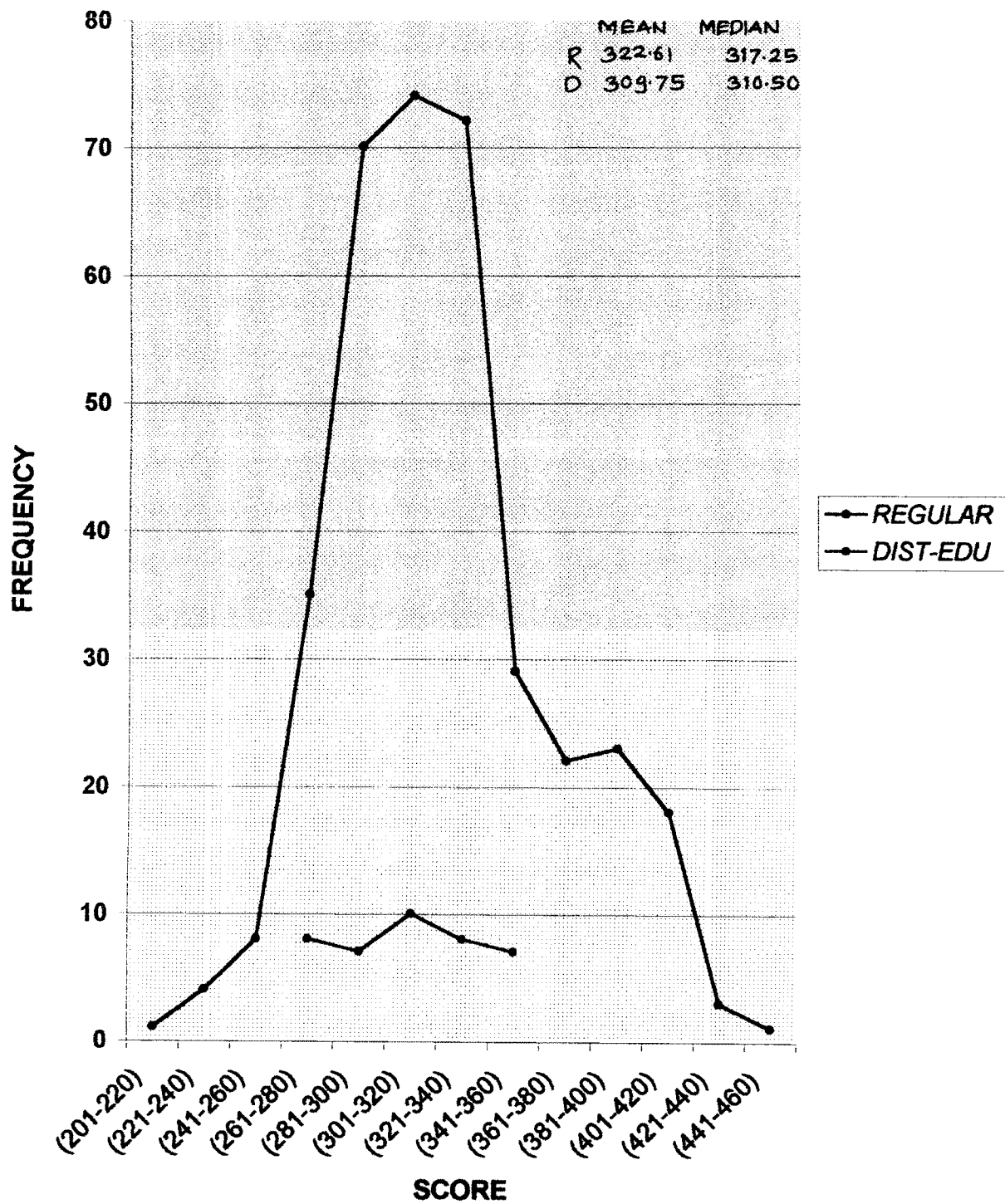
Calculation Norms:

As the significant difference was found in scores of regular student teacher and distance education student teachers. Separate norms were calculated for each group.

TABLE.IV-16. Norms for Regular and Distance Education student teachers.

Stanine	percentile	Score	
		Regular student teachers	Distance education student teachers
1	P ₄	261	265
2	P ₁₀	274	271
	P ₁₁	276	272
3	P ₂₀	287	281
	P ₂₃	290	284
4	P ₂₅	293	286
	P ₃₀	298	291
	P ₄₀	308	303
5	P ₅₀	317	331
	P ₆₀	327	319
6	P ₇₀	337	328
	P ₇₅	345	333
	P ₇₇	350	335
7	P ₈₀	357	338
	P ₈₉	385	347
8	P ₉₀	388	348
	P ₉₅	405	354
	P ₉₆	409	355
9	P ₉₉	423	359

REGULAR STUDENT TEACHERS & DISTANCE EDUCATION STUDENT TEACHERS



SCORE
FIG.-IV-5-

H-3.0. Graph of scores of regular student teachers and distance education student teachers.fig.IV-5.

Observations and interpretations.

1. Distribution of scores of regular student teachers is skewed positively or to the right.

Scores are massed at the low/left end of the scale and are spreadout gradually towards the high or right end.

Distribution for scores of Distance education student teachers are normal curve, the value of mean and median is coincides.

2. The calculated mean for regular and Distance education student teachers are 322.61 and 309.75 respectively.

The mean of regular student teacher lies to the right of median.

The calculated median for regular and distance education student teachers are 317.25 and 310.5.

3. The Score of regular student teacher are 201 to 460, and that of distance education is spread form 261 - 360.

4. A frequency distribution of regular student teachers more picked, this pickedness is said to be 'Leptokurtic'.

5. The distance education group seems more homogenous.

Hypothesis-H-3.1 There is no significant difference between the attitude of Regular female student teachers and distance education female student teachers towards Educational Technology.

The calculation for 't' value was done by taking following data in to account.

TABLE.IV-17. Means and standard deviations for Regular female and Distance education female student teachers.

Group	Number of student teachers	Mean 'M'	Standard Deviation. σ	Difference between Means of reg. female & distance edu.female student teachers. ' D'
Regular female Student teachers	159	332.76	40.17	12.26
Dist. education female student teachers	20	320.5	24.76	

from the above data the value of σ_D calculated was 6.39

Hence 't' value

$$= \frac{12.26}{6.39} = 1.92$$

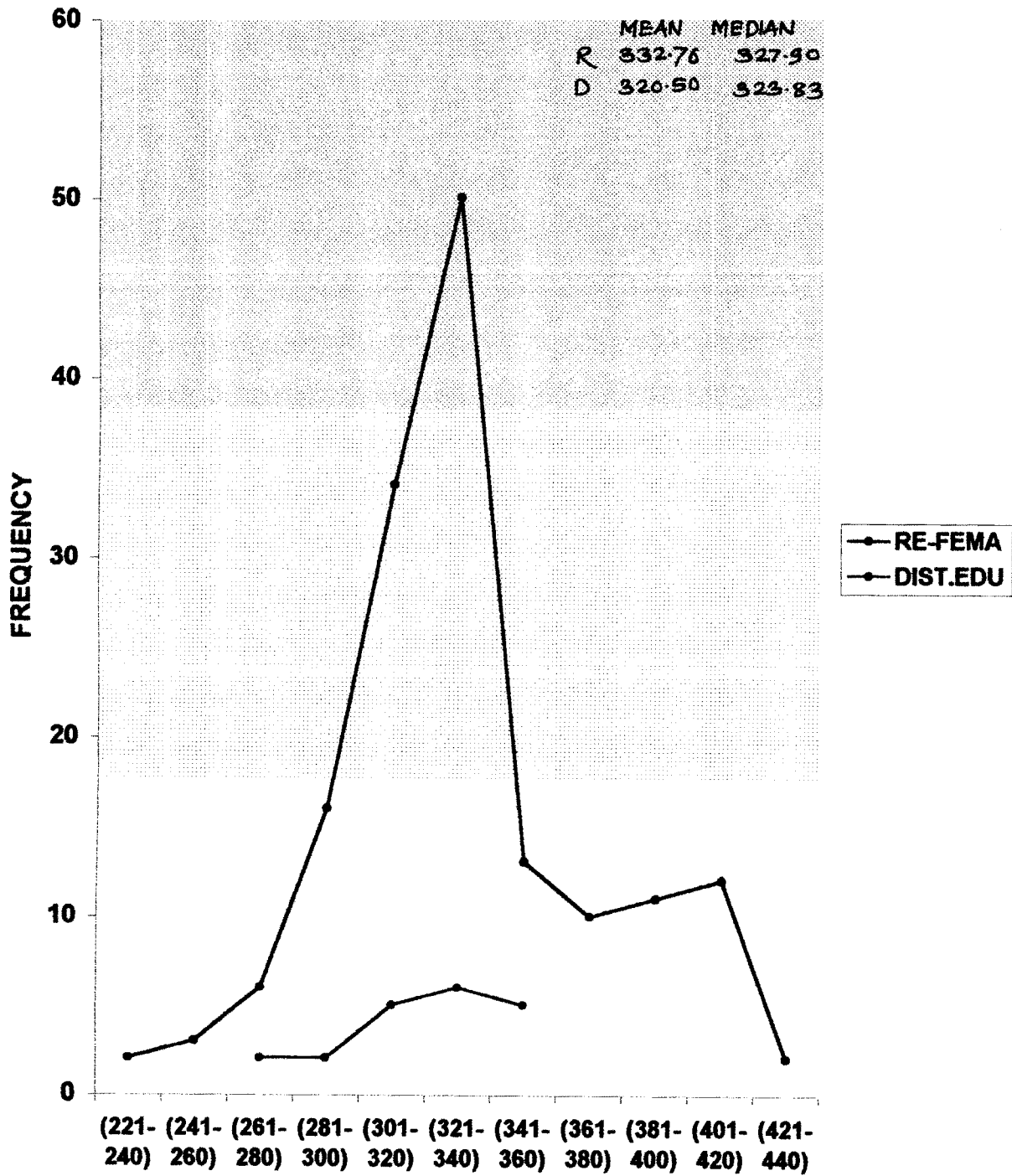
For df 177 the values at 0.05 and 0.01 levels are

0.05 level = 1.97

calculated 't' value = 1.92

0.01 level = 2.60

REGULAR FEMALE & DISTANCE EDUCATION FEMALE STUDENT TEACHERS



SCORE
FIG.IV-6-

Observation-

The calculated 't' value was significant at 0.01 level of significance.

Finding-

It can be concluded that there was no significant difference between the attitude of regular female student teachers and Distance Education female student teachers towards Educational Technology. It means hypothesis H-3.1 stated by the researcher was accepted.

It means regular and distance education female student teachers have same attitude towards Educational Technology.

The graphical representation is shown in graph.fig.IV-6.

H-3.1. Graph of scores of regular female student teachers and distance education female student teachers.

Observations and Interpretation-

1. Distribution for scores of Regular female student teachers is skewed positively to the right. Scores are massed at the low/left end of the scale, and are spread out gradually toward the high or right end.
2. Distribution for scores of distance education female student teachers is skewed negatively or to the left. Scores are massed at the high/right end of the scale and are spread out gradually towards the low or left end.
3. The calculated mean and median for regular female student teachers are 332.76 and 327.90 respectively. the mean lies to the right of the median.

The calculated mean and median for distance education female student teachers are 320.5 and 323.83 respectively. the mean lies to the left of the median.

4] The gap between mean and median of distance Education female student teacher is less as compared to regular female student teachers.

5] The scores of the regular female student teachers are spread from 221-440 and that of distance education Female student teachers are spread from 261-360.

6] A frequency distribution of regular female student teachers more picked than the distance education female student teachers, this pickedness in said to be leptokrurtic as compared to distance education female student teachers.

7] The distance education female group seems more homogeneous as compared with regular female student teachers.

Hypothesis H-3.2 There is no significant difference between the attitude of regular male student teachers and distance education male student teachers to wards Educational Technology.

The calculation for 't' value was done by taking following data in to account.

TABLE.IV-18. Means and standard deviations for Regular and Distance education male student teachers

Group	Number of student teachers	Mean 'M'	Standard Deviations σ	Difference between Means of regular & dist. education male student teachers. 'D'
Regular male Student teachers	201	314	42.5	16.07
Distance edn. male student teachers	20	298.5	25.90	

From above data the value of σ_D calculated was 6.52.

Hence t value

$$= \frac{16.07}{6.52} = 2.46$$

For d_f 219 the values at 0.05 and 0.01 levels are

0.05 level = 1.97

calculated t value=2.46

0.01 level=2.60

Observation-

The calculated t value was significance at 0.05 level of significance.

Finding-

It can be concluded that there was significant difference between the attitude of regular male student teachers and distance education male student teachers towards educational technology. It means hypothesis H-3.2 stated by the researcher was rejected.

It seems regular male student teachers have favourable attitude towards Educational Technology comparatively they like the Educational Technology more than the distance education male student teachers.

The graphical representation is given in graph.fig.IV-7.

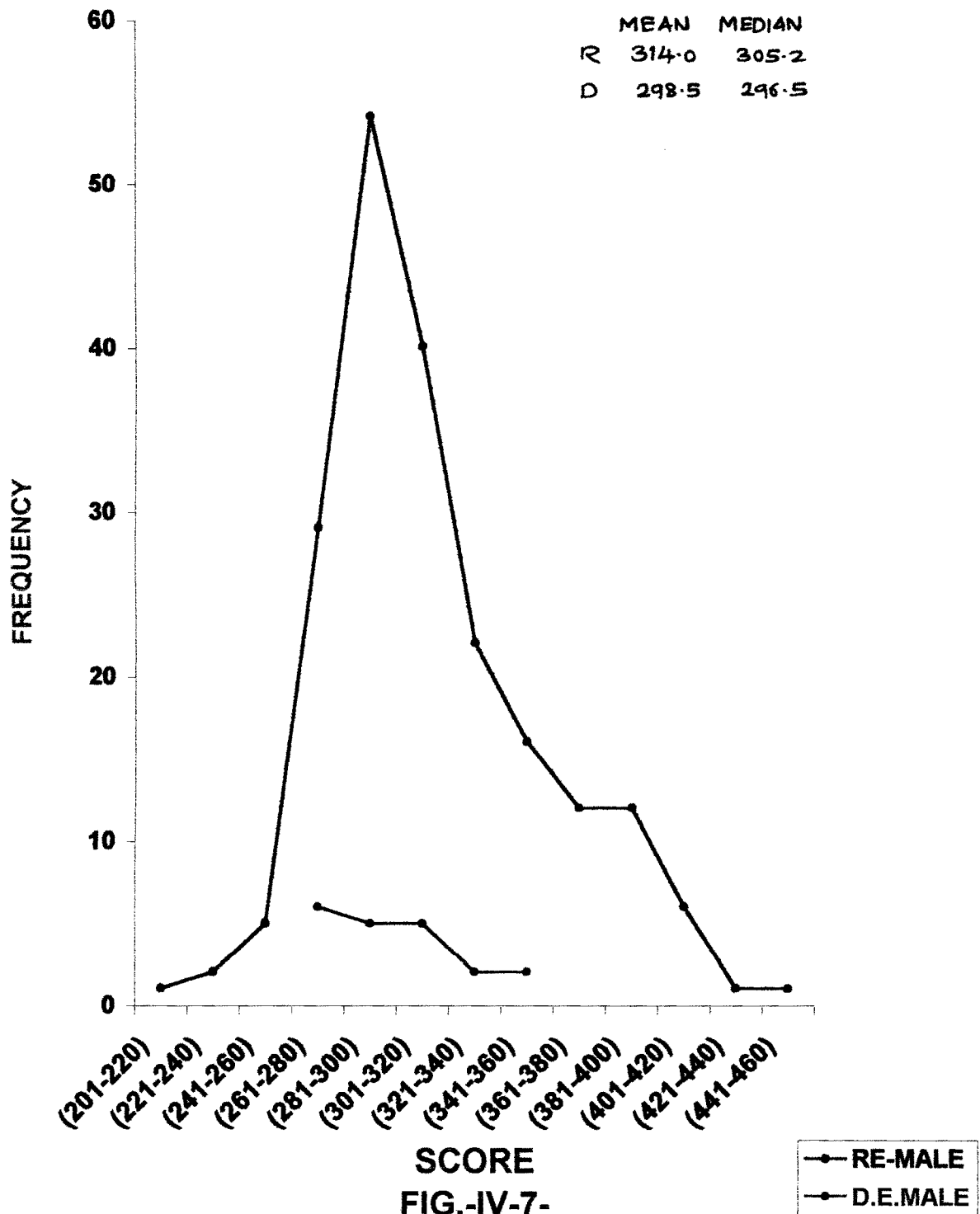
Calculation of norms:

As the significant difference was found in scores of regular male and distance education male student teachers, separate norms were calculated for each group which were tabulated in table.

TABLE.IV-19 Norms for Regular and Distance education male student teachers.

Stanine	percentile	Score	
		Regular male student teachers	Distance education male student teachers
1	P ₄	261	263
2	P ₁₀	269	267
	P ₁₁	270	268
3	P ₂₀	282	274
	P ₂₃	284	276
4	P ₂₅	286	277
	P ₃₀	289	281
	P ₄₀	297	289
5	P ₅₀	305	297
	P ₆₀	315	305
6	P ₇₀	329	313
	P ₇₅	338	317
	P ₇₇	343	318
7	P ₈₀	350	321
	P ₈₉	377	339
8	P ₉₀	380	341
	P ₉₅	397	351
	P ₉₆	400	353
9	P ₉₉	420	359

REGULAR MALE STUDENT TEACHERS & DISTANCE EDUCATION MALE STUDENT TEACHERS



H-3.2.- Graph of scores of regular male student teachers and distance education male student teachers.

Observations and interpretation:

1] Distribution of score of regular male and distance education male student teachers are skewed positively or to the right. Scores are massed at the low or left end of the scale. And spread out gradually toward the high or right end.

2] The calculated mean for regular male and distance education male student teachers are 314 and 298 respectively. These means lie to the right of the median. Calculated median for regular male student teacher and distance education male student teacher is 305.2 and 296.5

3] The gap between mean and median of the distance education male student teacher is less as compared to regular male student to regular male student teacher therefore the skewedness of distribution of distance education male student teachers is less than the regular male student teachers.

4] The scores of regular male student teacher are spread from 201-460 and of distance education male student teachers 261-360.

5] A frequency distribution of regular male student teachers more peaked than the distance education male student teachers, this peakedness is said to be Leptokurtic as compared to distance education male student teachers.

6] The regular male group seems more homogeneous as compared with the distance education male group.

TABLE.IV-20. Hypothesis and their significance at 0.05 and 0.01 levels.

Hypothesis	Group of student teachers	't' value	Significant or Non Significant	Level of significance
H-1.0	Female and Male	4.26	S	0.01
H-2.0	Urban area & Rural area	3.48	S	0.01
H-2.1	Urban area female & Rural area female	1.25	NS	-----
H-2.2	Urban area male & Rural area male	4.36	S	0.01
H-3.0	Regular and Distance Edu.	2.60	S	0.05
H-3.1	Regular Female & Dist. Edu. female	1.92	NS	-----
H-3.2	Regular Male & Dist. Edu. Male	2.46	S	0.05

S- Significant,

NS - Non Significant