CHAPTER 3

FINDINGS AND DISCUSSION

The present investigation was undertaken with a purpose to study the relative effectiveness of two selected strategies namely live programme vs. videoed programme of Bhavai and Exhibition cum Demonstration for promotion of Solar Cooker.

The sample consisted of the girls and boys from 9th and 11th standard from urban and rural schools of Baroda Taluka, Baroda, in the year 1989-90.

The investigator used 2 x 2 factorial design to study the relative effectiveness of the two selected strategies namely live and videoed Bhavai as motivational programme and Exhibition cum Demonstration as educational programme for promotion of Solar Cooker independently as well as in relation to selected variables. Relative effectiveness when compared and effective--ness of each strategy independently were judged in terms of scores achieved on motivational scale and knowledge test by selected group of students treated under the selected strategies according to the selected variables.

The data collected were analysed by using analysis of covariance (ANCOVA). In order to check the analysis of covariance paired t test was applied. The analysis of data was

carried out seperately for two selected communication strategies, for Bhavai as motivational programme and Exhibition cum Demon-stration as educational programme, keeping in mind the hypothesis of the study. The comparison between the adjusted posttest mean scores on motivational scale and on knowledge test achieved by students under live and videoed strategy were the criteria to judge the relative effectiveness of both the experimental groups independently and according to the selected variables. The comparison of the pretest and posttest mean scores achieved on the live and videoed strategy were the criteria to judge the effectiveness of the two selected strategies independently and according to the selected variables.

The present chapter deals with the findings and discussion which are reported in the two major sections.

Section I

Findings and Discussion related to Bhavai as motivational programme.

3.1 Relative Effectiveness between the two selected strategies namely live and videoed Bhavai as motivational programme according to the selected variables for promotion of Solar Cooker.

3.2 Relative Effectiveness within the selected strategies namely live/videoed Bhavai as motivational programme according to the selected variables for promotion of Solar Cooker.

Section II

Findings and Discussion related to Exhibition cum Demonstration as educational programme.

3.3 Relative Effectiveness between the two selected strategies namely live and videoed Exhibition cum Demonstration as educational programme according to the selected variables for promotion of Solar Cooker.

3.4 Relative Effectiveness within the selected strategies namely Live/Videoed Exhibition cum Demonstration as educational programme according to the selected variables for promotion of Solar Cooker.

Section I : Findings and Discussion Related to Bhavai as Motivational Programme

3.1 Relative Effectiveness Between Two Selected Strategies namely Live and Videoed Bhavai as Motivational Programme According to the Selected Variables for Promotion of Solar Cooker

In order to promote Solar Cooker two selected strategies namely live and videoed Bhavai as motivational programme were developed by the investigator. To find out the relative as well as independent effectiveness of these two selected strategies an experiment was conducted on selected students under study. They were exposed to the strategy after a pretest to judge their level of motivation. A posttest was given after exposing them to live and videoed Bhavai in order to study the effect of these

strategies in terms of increase in the motivation among these students.

Table 7. Overall Distribution of the Mean Scores Between the Selected Strategies of Motivational Programme

Strategies	Pretest Mean	Posttest Mean	t	F
Live (N = 129)	69.80	74.58	8.32** (128 df)	
				2.560 (1 x 273 df)
Video (N = 147)	70.25	75.91	12.87** (146 df)	

t value ** (P < .01)

In order to judge the overall relative effectiveness of the two strategies, the hypothesis that there will be nc significance in the adjusted posttest scores achieved on the motivational test by the selected students due to their exposure to live and videoed Bhavai as motivational programme for promotion of Solar Cooker was tested. The calculated F value of 2.560 was found to be insignificant at .05 level of confidence. This lead to conclude that the motivational level of the students exposed to these two strategies did not differ significantly as a function of strategies themselves. Hence, the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on motivational test

by the selected students due to their exposure to live and videoed Bhavai as motivational programme for promotion of Solar Cooker was accepted.

When the hypotheses that there will be no significant difference in the mean scores of pretest and posttest achieved on the motivational scale by the selected students under two experimental conditions namely live and videoed Bhavai used as motivational programme independently for promotion of Solar Cooker was tested the data revealed that the calculated t values of 8.32 and 12.87 for the students exposed to live and videoed Bhavai respectively were highly significant at .01 level of confidence. This indicated that there was significant difference in the pretest and posttest scores of the students under study.

Further, examination of the mean scores indicated that the pretest score of 69.80 for the students exposed to live Bhavai increased to 74.58 on the posttest and that of those under videoed Bhavai increased from 70.25 to 75.91 on post test. This lead to conclude that both the strategies independently lead to increase in motivational level. They were effective in increasing the motivation of the students for promotion of Solar Cooker. Hence, the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved on the motivational scale by the selected students under two experimental conditions namely live and videoed Bhavai as

motivational programme independently for promotion of Solar Cooker was rejected.

Table 8. Distribution of the Mean Scores Between the Selected Strategies of Motivational Programme According to Place of Habitation

Strategies	Pretest Mean	Posttest Mean	t	F
Live Urban (N = 66)	71.16	76.22	5.88** (65 df)	.0001 (1 x 139 df)
Video Urban (N = 76)	71.65	76.47	8.23** (75 df)	
Live Rural (N = 63)	68.38	72.85	5.90** (62 df)	5.376+ (1 x 131 df)
Video Rural (N = 71)	68.76	75.32	10.12** (70 df)	

F Value + (P < .05)
t Value ** (P < .01)

When the data were analysed to test the hypothesis that there will be no significant difference in the adjusted posttest scores on motivatonal scale by the selected students due to their exposure to live and videoed Bhavai as motivational programme for promotion of Solar Cooker according to their place of habitation, the calculated F value of .0001 for those from urban areas was found to be insignificant at .05 level of confidence. This leads to conclude that the motivational level

of urban students exposed to live and videoed Bhavai did not differ signficantly due these strategies. Hence, the hypothesis that there will be no significant difference in the adjusted posttest scores on motivational scale of the selected students due to their exposure to live and videoed Bhavai as motivational programme for promotion of Solar Cooker was accepted in case of the students from urban schools.

When the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved on the motivational scale by the selected urban students under two experimental conditions namely live and videoed Bhavai as motivational programme independently for promotion of Solar Cooker was tested, the data revealed that the calculated t values of 5.88 and 8.23 for those from urban areas exposed to live and videoed Bhavai respectively were found to be highly significant at .01 level of confidence. Thus, these findings indicated that there was significant difference in the pretest and posttest scores of students under study.

Further examination of the mean scores indicated that the pretest score of 71.16 for those under live Bhavai increased upto 76.22 on posttest and that of those under videoed Bhavai increased from 71.65 to 76.47 on posttest, thereby indicating that the strategies independently helped in increasing motivational scores of urban students.

Thus it was concluded that both the strategies were effective for urban students. Therefore, the hypothesis that

there will be no significant difference in the mean scores on pretest and posttest achieved on the motivational scale by the selected students under two experimental conditions namely live and videoed Bhavai as motivational programme independently for promotion of Solar Cooker was rejected in case of the students from urban schools.

When the hypothesis that there will be no significant difference in the adjusted posttest scores on motivational scale by the selected students due to their exposure to live and videoed Bhavai as motivational programme for promotion of Solar Cooker according to place of habitation, was tested, the calculated F value of 5.378 for the students from rural areas was found to be significant at .05 level of confidence. These findings revealed that the motivational level of rural students exposed to live and videoed Bhavai differed significantly due to these strategies. The data further indicated that the videoed Bhavai contributed more in increasing their motivational level when compared to live Bhavai. Hence, the hypothesis that there will be no significant difference in the adjusted posttest scores on motivational scale of the selected students due to their exposure to live and videoed Bhavai as motivational programme for promotion of Solar Cooker was rejected in case of the students from rural areas.

When the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved

on the motivational scale by the selected students under two experimental conditions namely live and videoed Bhavai as motivational programme independently for promotion of Solar Cooker was tested, the data revealed that the t values of 5.90 and 10.12 computed for rural students exposed to live and videoed Bhavai respectively were found to be highly significant at .01 level of confidence, indicating that these students under the two selected strategies differed significantly in their motivational level.

Further examination of the mean scores on pretest and posttest for students under each of these strategies indicated that the mean scores of those exposed to live Bhavai increased from 68.38 to 72.85 on posttest. Whereas those exposed to videoed Bhavai increased their pretest score of 68.76 to 75.32 on posttest. Hence, the hypothesis that there will be no significant difference in the mean scores of pretest and posttest, achieved on the motivational scale by the selected students under two experimental conditions namely live and videoed Bhavai as motivational programme independently for promotion of Solar Cooker was rejected in case of the students from rural schools.

This lead to conclude that the two selected strategies were equally effective in terms of increasing motivational level of the students from urban area. However, when independent effectiveness of the strategies was studied, both the strategies

were found to be effective in increasing posttest mean scores of the students from urban area. Though there was significant difference in the adjusted posttest score of the students from rural schools exposed to live and videoed Bhavai as motivational programme, of the two strategies, videoed Bhavai was found to be more effective for the students from rural schools. There was significant difference in the pretest and posttest mean score of the students from rural schools as each of these strategies independently increased mean scores significantly.

Table 9. Distribution of the Mean Scores Between the Selected Strategies of Motivational Programme According to Class of Study

Strategies	Pretest Mean	Posttest Mean	t	F
Live 9th Std. (N = 68)	69.58	72.82	4.37** (67 df)	
				2.988 (1 x 148 df)
Video 9th Std. (N = 83)	69.00	75.09	11.49** (82 df)	
Live 11th Std. (N = 61)	70.04	76.54	7.70** (60 df)	
				.597 (1 x 122 df)
Video 11th Std. (N = 64)	71.89	76.98	6.90** (63 df)	

t. value ** (P < .01)

When the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on the

motivational scale by the selected students due to their exposure to live and videoed Bhavai as motivational programme for promotion of Solar Cooker according to their class of study was tested, the calculated F value of 2.988 for 9th standard students exposed to live and videoed Bhavai was found to be insignificant at .05 level of confidence. This indicated that 9th standard students did not differ significantly in their motivational level due to their exposure to the two selected strategies namely live and videoed Bhavai. Hence, the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on the motivational test by the selected students due to their exposure to live and videoed Bhavai as motivational programme for promotion of Solar Cooker according to their class of study was accepted in case of the 9th standard students under study.

When the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved on the motivational scale by the selected students under two experimental conditions namely live and videoed Bhavai as motivational programme independently for promotion of Solar Cooker was tested, the data revealed that the calculated t values of 4.37 and 11.49 for the students from 9th standard exposed to live and videoed Bhavai respectively were found to be highly significant at .01 level of confidence, indicating significant difference in pretest and posttest scores of the students under study.

Further examination of data revealed that the 9th standard students under live Bhavai increased their score from 69.58 on pretest to 78.82 on posttest, whereas the pretest score of 69.00 of the 9th standard students exposed to videoed Bhavai increased to 75.09 on posttest. This data indicated that there was a significant difference in the pretest and posttest scores of 9th standard students exposed to live and videoed Bhavai independently as motivational programme. Hence, the hypothesis that there will be no significant difference in the pretest and posttest mean scores achieved on motivational scale by the selected students under two experimental conditions namely live and videoed Bhavai as motivational programme independently for promotion of Solar Cooker was rejected in case of the 9th standard students under study.

When the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on motivational scale by the selected students due to their exposure to live and videoed Bhavai as motivational programme for promotion of Solar Cooker according to their class of study was tested, the calculated F value of .597 for 11th standard students exposed to live and videoed Bhavai was found to be insignificant at .05 level of confidence, indicating that the 11th standard students did not differ significantly in their motivational level due to the two selected motivational strategies namely live and videoed Bhavai. Hence, the

hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on motivational scale by the selected students due to their exposure to live and videoed Bhavai as motivational programme for promotion of Solar Cooker according to their class of study was accepted in case of 11th standard students under study.

When the hypothesis that there will be no significant difference in the pretest and posttest mean scores achieved on motivational scale by the selected students under two experimental conditions namely live and videoed Bhavai as motivational programme independently for promotion of Solar Cooker was tested, the calculated t values of 7.70 and 6.90 for 11th standard students under live and videoed Bhavai respectively were found to be highly significant at .01 level of confidence.

Further examination of data revealed that the 11th standard students under live Bhavai increased their scores from 70.04 on pretest to 76.54 on posttest. Whereas the pretest score of 71.89 of the students exposed to videoed Bhavai increased to 76.98 on posttest. This data indicated that there was significant difference in the pretest and posttest mean scores of 11th standard students exposed to live and videoed Bhavai as motivational programme. Hence, the hypothesis that there will be no significant difference in the pretest and posttest mean scores achieved on motivational scale by the selected students under two experimental conditions namely live

live and videoed Bhavai as motivational programme for promotion of Solar Cooker was rejected in case of 11th standard students.

Thus, it can be concluded from the above discussion that there was no significant difference in the adjusted posttest scores achieved on motivational scales of the 9th and 11th standard students exposed to live and videoed Bhavai as motivational programme, but there was significant difference in the pretest and posttest mean scores of 9th and 11th standard students treated under each of the strategy which independently increased their scores on motivational scale significantly.

Table 10. Distribution of the Mean Scores Between the Selected Strategies of Motivational Programme According to the Sex of the Respondents

Strategies	Pretest Mean	Posttest Mean	t	F
Live Girls (N=70)	71.24	76.04	7.38** (69 df)	
				.716 (1 x 142 df)
Video Girls (N=75)	70.21	76.00	9.47** (74 df)	
Live Boys (N=59)	68.10	72.84	4.76** (58 df)	
				3.637 (1 x 128 df)
Video Boys (N=72)	70.30	75.83	8.67** (71 df)	

t Value ** (P < .01)

When the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on motivational scale by the selected students due to their exposure to live and videoed Bhavai as motivational programme for promotion of Solar Cooker according to the sex of respondents was tested, the calculated F value of .716 for the girls exposed to live and videoed Bhavai was found to be insignificant at .05 level of confidence, indicating that both the selected strategies did not differ significantly in increasing the motivational level of the girls. Hence, the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on motivational scale by the selected students due to their exposure to live and videoed Bhavai as motivational programmes for promotion of Solar Cooker according to the sex of the respondents, was accepted in case of the girls under study.

When the hypothesis that there will be no significant difference in the pretest and posttest mean scores achieved on the motivational scale by the selected students under two experimental conditions namely live and videoed Bhavai as motivational strategies independently for promotion of Solar Cooker according to the sex of the sex of the respondents, was tested, the calculated t values of 7.38 and 9.47 for the girls exposed to live and videoed Bhavai were found to be highly significant at .01 level of confidence, indicating significant difference in the pretest and posttest mean scores of the girls exposed to live and videoed Bhavai, independently.

Further examination of the data revealed that the pretest scores of 71.24 for the girls exposed to live Bhavai increased upto 76.04 on posttest, whereas that of 70.21 for pretest increased upto 76.00 on posttest for the girls exposed to videoed Bhavai. This data indicated that there was significant difference in the pretest and posttest mean scores of the girls exposed to live and videoed Bhavai independently as motivational programme. Hence, the hypothesis that there will be no significant difference in the pretest and posttest mean scores achieved on the motivational scale by the selected students under two experimental conditions namely live and videoed Bhavai as motivational programme independently for promotion of Solar Cooker according to the sex of the respondents was rejected in case of the girls exposed to two selected strategies.

When the data were analysed to test the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on motivational scale by the selected students due to their exposure to live and videoed Bhavai as motivational programme for promotion of Solar Cooker according to sex of the respondents was tested the calculated F value of 3.637 for the boys exposed to live and videoed Bhavai was found to be insignificant at .05 level of confidence. This indicated that there was no significant difference in the motivational level of the boys exposed to the selected strategies. Hence the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on motivational scale by

the selected students due to their exposure to live and videoed Bhavai as a motivational programme for promotion of Solar Cooker according to the sex of the respondents was accepted in case of the boys under study.

However, when the hypothesis that there will be no significant difference in the pretest and posttest mean scores achieved on motivational scale by the selected students under two experimental conditions namely live and videoed Bhavai as motivational programme independently for promotion of Solar Cooker according to the sex of the respondents was tested, the calculated t values of 4.76 and 8.67 for the boys exposed to live and videoed Bhavai were found to be highly significant at .01 level of confidence respectively, indicating significant difference in the pretest and posttest scores of the boys exposed to live and videoed Bhavai independently as motivational programme.

Further examination of the data revealed that the pretest score of 68.10 for the boys exposed to live Bhavai increased upto 72.84 and the pretest score of 70.30 for the boys exposed to videoed Bhavai increased upto 75.83 on posttest. This data indicated that there was significant difference in the pretest and posttest mean scores of the boys exposed to live and videoed Bhavai independently as motivational programme. Hence, the hypothesis that there will be no significant difference in the pretest and posttest mean scores achieved on the motivational

test by the selected students under two experimental conditions namely live and videoed Bhavai as motivational programme independently for promotion of Solar Cooker was rejected in case of the boys exposed to two selected strategies.

Thus, from the above discussion the data lead to conclude that there was no significant difference in the adjusted posttest score of the students exposed to live and videoed Bhavai as motivational programme due to sex as variable. This indicates that both the selected strategies were found equally effective for the girls and boys. There was significant difference in the pretest and posttest means score, of the girls and boys treated under each of the strategies independently which increased their motivational scores significantly.

Table 11. Distribution of Mean Scores Between the Selected Strategies of Motivational Programme According to the Level of Intelligence of the Students

Strategies	Pretest Mean	Posttest Mean	t	F
Live HIQ (N=67)	69.68	75.00	7.90** (66 df)	
				.001 (1 x 141 df)
Video HIQ (N=80)	70.00	75.21	8.82** (76 df)	
Live LIQ (N=62)	69.93	74.12	4.42** (61 df)	
				5.385+ (1 x 126 df)
Video LIQ (N=67)	70.59	76.76	9.42** (66 df)	

F Value + (P < .05) t Value ** (P < .01)

In order to judge the relative effectiveness of the two selected strategies when the hypothess that there will be no significant difference in the adjusted posttest mean scores achieved on motivational scale by selected students due to their exposure to live and videoed Bhavai as motivational programme for promotion of Solar Cooker according to their level of intelligence was tested, the calculated F value of .001 for the students with high intelligence exposed to live and videoed Bhavai was found to be insignificant at .05 level of confidence. This indicated that the students with high intelligence did not differ significantly in their motivational level. Hence, the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on motivational scale by selected students due to their exposure to live and videoed Bhavai as motivational programme for promotion of Solar Cooker according to level of intelligence was accepted in case of the students with high intelligence.

However, when the hypothesis that there will be no significant difference in the pretest and posttest mean scores achieved on the motivational scale by the selected students under two expermental conditions namely live and videoed Bhavai as motivational programme independently for promotion of Solar Cooker according to the level of intelligence was tested, the data revealed that the calculated t values of 7.90 and 8.82 for the students with high intelligence exposed to live and videoed Bhavai independently were found to be highly significant

at .01 level of confidence. Ths indicated that there was significant difference in the pretest and posttest mean scores of the students with high intelligence exposed to live and videoed Bhavai independently.

Further examination of the data revealed that the students with high intelligence under live Bhavai increased their scores from 69.68 on pretest to 75.00 on posttest. Whereas the pretest score of 70.00 of the students exposed to videoed Bhavai increased upto 75.21 on posttest. This data indicated that there was significant difference in the pretest and posttest mean scores of the students with high intelligence exposed to live and videoed Bhavai independently as motivational programme. Hence, the hypothesis that there will be no significant difference in the pretest and posttest mean scores achieved on motivational scale by the selected students under two experimental conditions namely live and videoed Bhavai as motivational programme independently for promotion of Solar Cooker according to the level of intelligence was rejected in case of the students with high intellgience exposed to two selected strategies.

When the data were analysed to test the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on motivational scale by the selected students due to their exposure to live and videoed Bhavai as motivational programme for promotion of Solar Cooker according

to their level of intelligence was tested, the calculated F Value of 5.385 for the students with low intelligence was found to be significant at .05 level of confidence, indicating that the students with low intelligence differed significantly in their motivational level due to two selected motivational strategies, namely live and videoed Bhavai. Hence, the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on motivational test by the selected students due to their exposure to live and videoed Bhavai as motivational programme for promotion of Solar Cooker according to the level of intelligence was rejected for the students with low intelligence.

However, when the data were further analysed to test the hypothesis that there will be no significant difference in the pretest and posttest mean scores achieved on the motivational scale by the selected students under two experimental conditions namely live and videoed Bhavai as motivational strategies independently for promotion of Solar Cooker according to the level of intelligence, the data revealed that the calculated t value of 4.42 and 9.42 for the students with low intellgience exposed to live and videoed Bhavai independently were found to be highly significant at .01 level of confidence. This indicated that there was significant difference in the pretest and posttest mean scores of the students with low intellgience, exposed to live and videoed Bhavai independently.

Further examination of data revealed that the students with low intelligence under live Bhavai increased their scores from 69.93 on pretest to 74.12 on posttest. Whereas the pretest score of 70.59 of the students exposed to videoed Bhavai increased upto 76.76 on posttest scores. This indicated that there was significant difference in the pretest and posttest mean scores of the students with low intelligence, exposed to live and videoed Bhavai independently as motivational programme. Hence, the hypothesis that there will be no significant difference in the pretest and posttest mean scores achieved on the motivational scale by the selected students under two experimental conditions namely live and videoed Bhavai as motivational programme independently for promotion of Solar Cooker according to the level of intelligence was rejected in case of the students with low intelligence exposed to the two selected strategies.

Thus, it can be concluded from the above discussions that there was no significant differences in the adjusted posttest scores of the students with high intelligence. Both the selected strategies were found effective independently in increasing the motivational level of the students with high intelligence.

Whereas there was significant difference in the adjusted posttest scores of the students with low intelligence. Which means that there was difference in the motivational level of the students exposed to the selected strategies. Of the two selected strategies, videoed strategy was found to be more

effective for the students with low intelligence. There was significant difference in the pretest and posttest mean scores of the students with low intelligence exposed to each of these strategies which also independently increased significantly.

3.2 Relative Effectiveness Within the Selected Strategies Namely Live and Videoed Bhavai as Motivational Programme According to the Selected Variables for Promotion of Solar Cooker

Table 12. Distribution of the Mean Scores Within the Selected Strategy Namely Live Motivational Programme According to the Selected Variables

Variables	Pretest Mean	Posttest Mean	t	F
Urban (N = 66)	71.16	76.22	5.88** (65 df)	
				3.383 (1 x 128 df)
Rural (N = 63)	68.38	72.85	5.90** (62 df)	
9th Std. (N = 68)	69.58	72.82	4.37** (67 df)	
				12.78++ (1 x 128 df)
11th Std. (N = 61)	70.04	76.54	7.70** (60 df)	
Girls (N = 70)	71.24	76.04	7.38** (69 df)	
				2.11 (1 x 128 df)
Boys (N = 59)	68.10	72.84	4.76** (58 df)	
HIQ (N = 67)	69.68	75.00	7.90** (66 df)	
				.999 (1 x 128 df)
LIQ (N = 62)	69.93	74.12	4.42** (61 df)	

F value ++ (P<.01) t value ** (P<.01)

When the data were analysed to test the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on motivational scale by selected students due to their exposure to Live and Videoed Bhavai as motivational programme in relation to selected variables namely place of habitation, class of study, sex and level of intelligence for promotion of Solar Cooker was tested for the students exposed to Live Bhavai, the calculated F values of 3.38, 2.11 and .999 according to place of habitation, sex and level of intelligence respectively were found insignificant at .05 level of confidence. This leads to conclude that there was no significant difference in the motivational level of the students exposed to Live Bhavai due to place of habitation, sex of the respondents and level of intelligence.

This was supported by Singhaulakh's study (1979) on students motivation to work which revealed that there was no significant difference between urban and rural schools with regard to motivation to work.

However the calculated F value of 12.78 according to class of study was found to be highly significant at .01 level of confidence in increasing the motivational level of the students. This indicated that there was significant difference in increase in the motivational level of the students exposed to live strategy according to class of study.

The findings in Singhaulakh's (1979) study on students motivaton to work contradicted with those of present study in which his data revealed that there was no significant difference among students of Class IX and X with regard to motivation.

Further examination of the mean scores according to class of study revealed that the pretest mean scores of 69.58 increased upto 72.82 on posttest for 9th standard students and the pretest mean scores of 70.04 increased upto 76.54 on posttest for 11th standard students. Which indicated that live Bhavai was more effective for the students from 11th standard.

Hence, the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on motivational scale by selected students due to their exposure to Live and Videoed Bhavai as motivational programme in relation to selected variables namely place of habitation, sex and level of intelligence was accepted. However, it was rejected in case of the class of study for the students who were exposed to live Bhavai as motivational programme.

When the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved on motivational scale by the selected students within the experimental conditions namely live/videoed Bhavai as motivational programme in relation to selected variables namely place of habitation, class of study, sex and level of intelligence for promotion of Solar Cooker was tested for the

students exposed to live Bhavai. The calculated t values as per table were found to be highly significant at .01 level of confidence according to the selected variables, namely place of habitation, class of study, sex and level of intelligence of the students. This indicated that Live strategy was found to be effective in increasing the motivational level of the students irrespective of the selected variables.

Hence, the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved on motivational scale by the selected students within the experimental conditions namely live/videoed Bhavai as moti--vational programme in relation to selected variables namely place of habitation, class of study, sex and level of intelligence was rejected in case of the students exposed to Live Bhavai.

When the data were analysed to test the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on motivational scale by selected students due to their exposure to Live and Videoed Bhavai as motivational programme in relation to selected variables namely place of habitation, class of study, sex and level of intelligence for promotion of Solar Cooker was tested for the students exposed to Videoed Bhavai, the calculated F values of 1.43, .079, .079 and 1.82 according to the place of habitation, class of study, sex and level of intelligence respectively were found insigni--ficant at .05 level of confidence. This leads to conclude that

Table 13. Distribution of the Mean Scores Within the Selected Strategy Namely Vidoeed Motivational Programme According to the Selected Variables

Variables	Pretest Mean	Posttest Mean	t	F
Urban (N = 76)	71.65	76.47	8.23** (75 df)	
				1.43 (1 x 146 df)
Rural (N = 71)	68.76	75.32	10.12** (70 df)	
9th Std. (N = 83)	69.00	75.09	11.49** (82 df)	
				.079 (1 x 146 df)
11th Std. (N = 64)	71.89	76.98	6.90** (63 df)	
Girls (N = 75)	70.21	76.00	9.47** (74 df)	
				.076 (1 x 146 df)
Boys (N = 73)	70.30	75.83	8.67** (72 df)	
HIQ (N = 75)	70.00	75.21	8.82** (76 df)	
				1.824 (1 x 146 df)
LIQ (N = 67)	70.59	76.76	9.42** (66.df)	

t value ** (P < .01)

there was no significant difference in the motivational level of the students exposed to videoed Bhavai according to the selected varables. Therefore, the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on motivational scale by selected students due to their exposure to Live and Videoed Bhavai as motivational programme in relation to selected variables namely place of habitation, class of study, sex and level of intelligence for promotion of Solar Cooker was accepted in case of the students exposed to videoed Bhavai.

This was supported by Singhaulakh's study (1979) on students motivation to work which revealed that there was no significant difference in the motivation of the students according to class of study and place of habitation.

When the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved on motivational scale by the selected students within the exper--imental conditions namely live/videoed Bhavai as motivational programme in relation to selected variables namely place of habitation, class of study, sex and level of intelligence for promotion of Solar Cooker was tested for the students exposed to videoed Bhavai. The calculated t values as per table were found to be highly significant at .01 level of confidence according to the selected variables namely place of habitation, class of study, sex and level of intelligence of the students.

This indicated that videoed strategy was effective in increasing the motivational level of the students irrespective of the selected variables.

This was supported by Muddu's study (1978) on the effectiveness of the use of motion picture as aids in the teaching of biological sciences as compared to usual methods revealed that Instruction films stimulated the scientific interest in the students.

Hence, the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved on motivational scale by the selected students within the experimental conditions namely live/videoed Bhavai as motivational programme in relation to the selected variables namely place of habitation, class of study, sex and level of intelligence was rejected in case of the students exposed to videoed Bhavai.

Major Findings

1. There was no significant difference in the adjusted posttest mean scores on motivation of the students under study between the two selected strategies independently. However, there was significant difference in motivation of the students under study due to selected variables namely place of habitation and level of intelligence indicated by 't' test arrived at on the basis of mean scores between the two selected strategies.

2. There was significant difference in the pretest and posttest mean scores achieved on motivation scale by the students under two experimental conditions namely Live and Videoed Bhavai irrespective of the selected variables. However, the findings further lead to conclude that there was significant difference in motivation of the selected students under study under each of the two selected strategies in relation to selected variables namely place of habitation, class of study, sex and level of intelligence.

3. There was no significant difference in the adjusted posttest scores on motivation of the students under study within the two selected strategies namely Live/ Videoed Bhavai as motivational programme. However, there was significant difference in motivation of the students under study within the Live strategy due to selected variable namely class of study.

4. There was significant difference in the pretest and posttest mean scores of motivation of the students under two experimental conditions namely Live/Videoed Bhavai irrespective of the selected variables. Moreover, the findings further lead to conclude that there was significant difference in motivation of the selected students under each of the two selected strategies in relation to selected variables namely place of habitation, class of study, sex and level of intelligence.

Overall Conclusion

On the whole there was no significant difference between the strategies in increasing the motivational level of the students under study and both the strategies namely Live and Videoed Bhavai were found effective independently in increasing the motivational level of the students under study. This fact could be due to the reason that both the selected strategies which were developed and presented were comparable in terms of content covered as well as mode of presentation. As mentioned in the earlier chapter the same script, cuplets music and presen--tation of Bhavai was followed in both the selected strategies for motivation. Therefore, it can be concluded that if the motivational strategies which were developed and presented equally created similar effect on the students under study. Hence there was no significant difference in their motivation on account of these strategies.

When the relative effectiveness of the two selected strategies in terms of increase in motivation according to the selected variables namely place of habitation, class of study, sex and level of intelligence was studied there was no significant difference in the motivational level according to class of study as well as sex of the respondents. Whereas there was significant difference in the motivational level of the students exposed to Live and Videoed bhavai according to the variables namely place of habitation and level of intelligence.

This particular relative effectiveness between the strategies could be attributed to the following reasons.

The reason for the Live and Videoed Bhavai being effective for the 9th and 11th standard students could be that as both the strategies were developed and presented equally it created the similar effect on the students.

In Indian society use of fuel alternate/conventional or non-conventional, is a stereotype role assigned to gender namely female, that is, girls or women. However, developing scientific attitude leading to motivation in learning about scientific innovations to solve day to day problems on the part of males could be the reason for equal motivation of boys under study. Even their exposure to T.V. and Extension programme. This could be attributed to the high and equal motivation.

However, the findings regarding the place of habitation and level of intelligence revealed that there was significant difference in the motivational level of the students under study from rural schools and students with low intelligence exposed to the selected strategies namely Live and Videoed strategies. Videoed Bhavai was found to be more effective for the students from rural schools and for the students with low intellgience.

The reasons for videoed strategy being more effective could be due to a novel idea of presentation. Secondly it also could

be due to the reason that the students with low intelligence were unable to grasp the message through live Bhavai may be because they were distracted by the dresses, make up etc of the characters of Live Bhavai, no such distraction were present in videoed Bhavai and hence it was more effective.

Hence, the implication could be that while selecting and developing the motivational strategies for popularization of Solar Cooker a teacher/promotor should check the appropriateness of the strategies according to these two different characteristics of the students namely place of habitation and level of intelligence.

When the effectiveness of the two selected strategies namely Live and Videoed Bhavai as motivational programme was tested independently to study the differences in the pretest and posttest mean scores in relation to selected variables namely place of habitaion, class of study, sex and level of intelligence both the strategies were effective independently in increasing the motivational level of the students significantly. This could be due to the reason that imparting information with entertainment through Live or Videoed Bhavai in classroom situation are new ideas. Therefore, it can be concluded that any of the strategies could be used in motivating the students for promotion of Solar Cooker.

When the relative effectiveness within the selected strategies namely Live/Videoed Bhavai was tested Live strategy

was found effective for the students according to their place of habitation, sex and level of intelligence, but in case of their class of study they differed. Whereas the videoed strategy was found effective for all students varying on account of selected variables.

The reason for the difference in the motivational level due to class of study could be that students from the 11th standard are capable of grasping the message through entertainment as compared to the 9th standard students, though live Bhavai was found to be effective for all the students. Hence, the variable class of study should be kept in mind while using the Live strategy for promotion of Solar Cooker.

Section - II Findings and Discussion Related to Exhibition cum Demonstration as Educational Programme

3.3 Relative Effectiveness Between Two Selected Strategies Namely Live and Videoed Exhibition cum Demonstration as Educational Programme According to the Selected Variables for Promotion of Solar Cooker

In order to impart the knowledge about Solar Cooker to the selected students, two selected strategies, namely, live and videoed Exhibition cum Demonstration as educational programme were developed by the investigator. To find out the relative, as well as, independent effectiveness of these two selected strategies, an experiment was conducted on selected students under study. They were exposed to the strategy after a pretest using knowledge test to judge the level of knowledge. A posttest was given after exposing them to live and videoed Exhibition cum Demonstration in order to study the effect of these strategies in terms of increase in scores indicating increase in the level of knowledge among these students.

Table 14. Overall Distribution of the Mean Scores Between the Selected Strategies of Educational Programme

Strategies	Pretest Mean	Posttest Mean	t	F
Live (N=129)	41.64	56.84	15.81** (128 df)	.718 (1 x 273 df)
Video (N=147)	48.48	60.95	12.52** (146 df)	

t Value ** (P < .01)

To study the overall relative effectiveness of the two selected strategies when the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on the knowledge test by the selected students due to their exposure to live and videoed Exhibition cum Demonstration as educational programme for promotion of Solar Cooker was tested, the calculated F value of .718 was found to be insignificant at .05 level of confidence. This indicated that the knowledge level of the students exposed to these two strategies did not differ significantly as a function of strategies themselves. Therefore, the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on the knowledge test by the selected students due to their exposure to live and videoed Exhibition cum Demonstration as educational programme for promotion of Solar Cooker was accepted.

When the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved on the knowledge test by selected students under two experi--mental conditions namely live and videoed Exhibition cum Demonstration as educational strategies for promotion of Solar Cooker was tested, the data revealed that the calculated t values of 15.81 and 12.52 for the students exposed to live and videoed Exhibition cum Demonstration respectively were highly significant at .01 level of confidence. Meaning thereby that, there was significant difference in the pretest and posttest

scores of the students under study.

Further examination of the mean scores indicated that the pretest score of 41.64 for the students exposed to live Exhibition cum Demonstration increased to 56.84 on the posttest and that of those under videoed Exhibition cum Demonstration increased from 48.48 to 60.95 on posttest of the students under study. This indicated that both the strategies independently lead to increase in the knowledge level and were effective in increasing the knowledge of the students regarding Solar Cooker. Hence, the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved on the knowledge test by selected students under two experimental conditions namely live and videoed Exhibition cum Demonstration as educational programme for promotion of Solar Cooker was rejected.

Table 15 . Distribution of the Mean Scores Between the Selected Strategies of Educational Programme According to Place of Habitation

Strategies	Pretest Mean	Posttest Mean	t	F
Live Urban (N=66)	38.66	50.90	10.28** (65 df)	
				1.62 (1 x 139 df)
Video Urban (N=76)	52.07	63.03	6.38** (75 df)	
Live Rural (N=63)	44.76	63.06	12.76** (62 df)	
				6.523^{+} (1 x 131 df)
Video Rural (N=71)	44.64	58.73	15.45** (70 df)	

F value + (P < .05) t value ** (P < .01)

When the data were analysed to test the hypothesis that there will be no significant difference in the adjusted posttest scores of knowledge test by the selected students due to their exposure to live and video Exhibition cum Demonstration as educational programme for promotion of Solar Cooker according to their place of habitation, the calculated F value of 1.62 for those from urban school was found to be insignificant at .05 level of confidence. This indicated that there was no significant difference in the knowledge level of the students from urban schools exposed to live and videoed Exhibition cum Demonstration. Hence, the hypothesis that there will be no significant difference in the adjusted posttest scores achieved on knowledge test by the selected students due to their exposure to live and video Exhibition cum Demonstration as educational programme for promotion of Solar Cooker according to their place of habitation was accepted in case of the students from urban area under study.

When the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved on educational test by the selected students under two experi--mental conditions namely live and videoed Exhibition cum Demonstration as educational strategies independently for promotion of Solar Cooker according to place of habitation was tested, the data revealed that the calculated t values of 10.28 and 6.38 for those from urban areas exposed to live and videoed Exhibition cum Demonstration respectively, were found to be

highly significant at .01 level of confidence. These findings indicated that there was signiticant difference in the pretest and posttest scores of students under study.

Further examination of mean scores indicated that the pretest scores of 38.66 for those under live Exhibition cum Demonstration increased upto 50.90 on posttest and that of those under videoed Exhibition cum Demonstration increased from 52.07 to 63.03 on posttest, thereby indicating that the strategies independently helped in increasing knowledge scores of urban students. It was, therefore, concluded that both the strategies were effective in increasing the knowledge of the students about Solar Cooker. Thus, the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved on the knowledge test by selected students under two experimental conditions namely live and videoed Exhibition cum Demonstration as educational programme independently for promotion of Solar Cooker was rejected in case of the students from urban schools.

When the data were analysed to test the hypothesis that there will be no significant difference in the adjusted posttest scores on knowledge test by selected students due to their exposure to live and videoed Exhibition cum Demonstration as educational strategies for promotion of Solar Cooker according to their place of habitation, the calculated F value of 6.523

for those from rural schools was found to be significant at .05 level of confidence. This indicated that there was significant difference in the gain in knowledge of the rural students exposed to live and videoed Exhibition cum Demonstration. Hence, the hypothesis that there will be no significant difference in the adjusted posttest scores on knowledge test by the selected students due to their exposure to live and videoed Exhibition cum Demonstration as educational programme for promotion of Solar Cooker according to their place of habitation was rejected in case of the students from rural area under study. Of the two strategies live strategy was found to be more effective for the students from rural schools.

When the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved on the knowledge test by selected students under two expermental conditions namely live and video Exhibition cum Demonstration as educational programme independently for promotion of Solar Cooker according to their place of habitation was tested, the data revealed that the calculated t values of 12.76 and 15.45 for the students from rural schools exposed to live and videoed Exhibition cum Demonstration respectively were found to be highly significant at .01 level of confidence. This indicated that there was significant difference in the pretest and posttest scores of students under study.

Further examination of the mean scores indicated that the pretest scores of 44.76 for those under live Exhibition cum

Demonstration increased upto 63.06 on posttest and that of those under videoed Exhibition cum Demonstration increased from 44.64 to 58.73 on posttest of the students under study. Meaning thereby that the strategies independently also helped in increasing knowledge level and were effective in increasing the knowledge of the students about Solar Cooker. Hence, the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved on the knowledge test by the selected students under two experimental conditions namely live and videoed Exhibition cum Demonstration as educational programme independently for promotion of Solar Cooker according to place of habitation was rejected in case of the students from rural schools. This leads to conclude that both the selected strategies were equally effective in terms of increasing the knowledge of the students from urban schools whereas live strategy was found to be more effective for the students from rural schools. There was no significant difference in the adjusted posttest mean scores of the students from urban and rural schools exposed to live and videoed Exhibition cum Demonstration as educational programme, but there was significant difference in the pretest and posttest mean scores of the students from urban and rural schools for each of the strategies which independently increased significantly.

Table 16. Distribution of the Mean Scores Between the Selected Strategies of Educational Programme According to Class of Study

Strategies	Pretest Mean	Posttest Mean	t	F
Live 9th Std. (N = 68)	38.08	51.14	11.43** (67 df)	
				2.98 (1 x 148 df)
Video 9th Std. (N = 83)	51.03	58.16	5.26** (82 df)	
Live 11th Std. (N = 61)	45.60	63.19	11.43** (60 df)	
				.954 (1 x 122 df)
Video 11th Std. (N = 64)	45.18	64.57	21.36** (63 df)	

t value ** (P < .01)

In order to study the relative effectiveness of the strategies, the hypothesis that there will be no significant difference in adjusted posttest scores achieved in knowledge test by the selected students due to their exposure to live and videoed Exhibition cum Demonstration as educational programme for promotion of Solar Cooker accordng to class of study was tested, the calculated F value of 2.98 for those students from 9th standard was found to be insignificant at .05 level of confidence. This indicated that there was no significant difference in the level of knowledge of the 9th standard

students exposed to live and videoed Exhibition cum Demon--stration. Hence, the hypothesis that there will be no significant difference in the adjusted posttest scores achieved on knowledge test by the selected students due to their exposure to live and videoed Exhibition cum Demonstration as educational programme for promotion of Solar Cooker was accepted in case of the 9th standard students as there was no significant difference in the level of knowledge of the students exposed to live and videoed Exhibition cum Demonstration.

When the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved on knowledge test by the selected students under two experi--mental conditions namely live and videoed Exhibition cum Demonstration as educational programme independently for promotion of Solar Cooker according to class of study was tested, the data revealed that the calculated t values of 11.43 and 5.26 for the 9th standard students exposed to live and videoed Exhibition cum Demonstration respectively were found to be highly significant at .01 level of confidence. These findings indicated that there was significant difference in the pretest and posttest scores of students under study.

Further examination of the mean scores indicated that the pretest scores of 38.03 for those under live Exhibition cum Demonstration increased upto 51.14 on posttest and for the students under videoed Exhibition cum Demonstration increased

from 51.03 to 58.16 on posttest. Thereby it indicated that these strategies independently helped in increasing knowledge scores of 9th standard students under study.

Thus, it could be concluded that both the selected strategies were effective indpendently in increasing the knowledge of students about Solar Cooker. Hence, the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved on the knowledge test by selected students under two experimental conditions namely live and videoed Exhibition cum Demonstration as educational programme independently for promotion of Solar Cooker was rejected in case of the 9th standard students.

When the hypothesis that there will be no significant difference in the adjusted posttest scores on knowledge test by the selected students due to their exposure to live and videoed Exhibition cum Demonstration as educational programme for promotion of Solar Cooker according to their class of study was tested, the calculated F value of .954 for those from 11th standard was found to be insignificant at .05 level of confidence. This indicated that there was no significant difference in the gain in knowledge of the 11th standard students exposed to live and videoed Exhibition cum Demonstration. Hence, the hypothesis that there will be no significant difference in the adjusted posttest scores on knowledge test by the selected students due to their exposure to

live and videoed Exhibition cum Demonstration as educational programme for promotion of Solar Cooker according to the class of study was accepted in case of 11th standard students under study.

When the data were analysed to test the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved on knowledge test by selected students under two experimental conditions namely live and videoed Exhibition cum Demonstration independently as educational programme for promotion of Solar Cooker according to class of studywas tested, it revealed that the calculated t values of 11.43 and 21.36 for the 11th standard students exposed to live and video Exhbition cum Demonstration respectively were highly significant at .01 level of confidence. This indicated that there was significant difference in the pretest and posttest scores of the students under study.

Further examination of the mean scores indicated that the pretest score of 45.60 for the students exposed to live Exhibition cum Demonstration increased to 63.19 on posttest and that of those under videoed Exhibition cum Demonstration increased from 45.18 to 64.57 on posttest of the students under study. This leads to conclude that both the selected strategies were effective independently in increasing the level of knowledge for the promotion of Solar Cooker. Hence, the hypothesis that there will be no significant difference in the

mean scores of pretest and posttest achieved on knowledge test by the selected students under two experimental conditions namely live and videoed Exhibition cum Demonstration independently as educational programme for promotion of Solar Cooker was rejected in case of the 11th standard students under study.

It can be concluded from the above discussion that both the selected strtegies were equally effective in terms of increasing the knowledge level of 9th and 11th standard students. There was no significant difference in the adjusted posttest mean scores of 9th and 11th standard students exposed to live and videoed Exhibiton cum Demonstration as educational programme, but there was significant difference in the pretest and posttest mean scores of 9th and 11th standard students for each of the strategies which independently increased significantly.

Table 17. Distribution of the Mean Scores Between the Selected Strategies of Educational Programme According to the Sex of the Respondents

Strategies	Pretest Mean	Posttest Mean	t	F
Live Girls (N = 70)	42.77	57.37	10.64** (69 df)	
				.846 (1 x 142 df)
Video Girls (N = 75)	50.42	65.13	11.93** (74 df)	
Live Boys (N = 59)	40.30	56.22	11.91** (58 df)	
				3.181 (1 x 128 df)
Video Boys (N = 72)	46.47	56.61	6.59** (71 df)	

t value ** (P < .01)

In order to study the relative effectiveness the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on the knowledge test by the selected students due to their exposure to live and videoed Exhibition cum Demonstration as educational programme for promotion of Solar Cooker according to sex of the respondents was tested, the calculated F value of .846 for the girls exposed to live and videoed Exhibition cum Demonstration was found to be insignificant at .05 level of confidence. In other words there was no significant difference in the gain in knowledge of the

girls exposed to live and videoed Exhibition cum Demonstration. Hence the hypothess that there will be no significant difference in the adjusted posttest scores achieved on knowledge test by the selected students due to their exposure to live and videoed Exhibition cum Demonstration as educational programme for promotion of Solar Cooker according to the sex of the respondents, was accepted in case of the girls under study.

Whereas when the hypothesis that there will be no significant difference in the pretest and posttest mean scores achieved on the knowledge test by the selected students under two experimental conditions namely live and video Exhibition cum Demonstration as educational programme independently for promotion of Solar Cooker according to the sex of the respondents was tested, the calculated t values of 10.64 and 11.93 for the girls exposed to live and videoed Exhibition cum Demonstration were found to be highly significant at .01 level of confidence. Which indicated that there was significant difference in the pretest and posttest mean scores of the girls exposed to live and videoed Exhibition cum Demonstration independently.

The pretest score of 42.77 for the girls exposed to live Exhibition cum Demonstration increased upto 57.37 on posttest, whereas that of 50.42 for pretest increased upto 65.13 on posttest for the girls exposed to videoed Exhibition cum Demonstration. This indicated that there was significant difference in the pretest and posttest mean scores of the girls

exposed to live and videoed Exhibition cum Demonstration independently as educational programme. Therefore, the hypothesis that there will be no signficant difference in the pretest and posttest mean scores achieved on the knowledge test by the selected students under two experimental conditions namely live and videoed Exhibition cum Demonstration as educational programme independently for promotion of Solar Cooker according to the sex of the respondents was accepted in case of the girls exposed to these selected strategies.

When the data were analysed to test the hypothesis that there will bo no significant diference in the adjusted posttest mean scores achieved on the knowledge test by the selected students due to their exposure to live and videoed Exhibition cum Demonstration as educational programme for promotion of Solar Cooker according to sex of the respondents was tested, the calculated F value of 3.181 for the boys exposed to live and videoed Exhibition cum Demonstration was found to be insigni--ficant at .05 level of confidence. This indicated that there was no significant difference in the knowledge level of the boys exposed to live and videoed Exhibition cum Demonstration. Hence, the hypothesis that there will be no significant diference in the adjusted posttest mean scores achieved on knowledge test by the selected students due to their exposure to live and videoed Exhibition cum Demonstration as educational programme for promotion of Solar Cooker according to the sex of the respondents was accepted in case of the boys under study.

However, when the hypothesis that there will be no significant difference in the pretest and posttest mean scores achieved on knowledge test by the selected students under two experimental conditions namely live and videoed Exhibition cum Demonstration as educational programme independently for promotion of Solar Cooker according to the sex of the respondents was tested the calculated t values of 11.91 and 8.67 for the boys exposed to live and videoed Exhibition cum Demon--strtion respectively were found to be highly significant at .01 level of confidence. This indicated significant difference in the pretest and posttest mean scores by the boys exposed to live and videoed Exhibition cum Demonstration independently as educational programme. Further examination of scores revealed that the pretest score of 40.30 for the boys exposed to live Exhibition cum Demonstration increased upto 56.22 on posttest, and the pretest of 46.47 for the boys exposed to videoed Exhibition cum Demonstration upto 56.61 on posttest.

The above data indicated that there was significant difference in the pretest and posttest mean scores of the boys exposed to live and videoed Exhibition cum Demonstration independently as educational programme. Hence, the hypothesis that there will be no significant difference in the pretest and posttest mean scores achieved on the knowledge test by the selected students under two experimental conditions namely live and videoed Exhibition cum Demonstration as educational programme independently for promotion of Solar Cooker was

rejected in case of the boys exposed to the two selected strategies.

Thus, the above discussion leads to conclude that there was no significant difference in the adjusted posttest score of the girls and boys exposed to live and videoed Exhibition cum Demonstration as educational programme. This means that both the selected strategies were equally effective in increasing the knowledge level of the girls and boys. Whereas there was significant difference in the pretest and posttest mean score of the girls and boys for each of the strategies which independently increased significantly.

Table 18. Distribution of the Mean Scores Between the Selected Strategies of Educational Programme According to the Level of Intelligence

Strategies	Pretest Mean	Posttest Mean	t	F
Live HIQ (N = 67)	44.49	60.62	13.59** (66 df)	
				.152 (1 x 144 df)
Video HIQ (N = 80	50.67	64.50	12.14** (79 df)	
Live LIQ (N = 62)	38.56	52.75	9.25** (61 df)	
				.298 (1 x 126 df)
Video LIQ (N = 67)	45.88	56.73	6.39** (66 df)	

t Value ** (P < .01)

In order to judge the relative effectiveness of the two selected strategies the hypothesis that there will be no signi--ficant difference in the adjusted posttest mean scores achieved on knowledge test by the selected students due to their exposure to live and videoed Exhibition cum Demonstration as educational programme for promotion of Solar Cooker according to level of intelligence was tested the calculated F value of 0.152 for the students with high intelligence exposed to live and videoed Exhibition cum Demonstration was found to be insignificant at .05 level of confidence. This indicated that the students with the high intelligence did not differ significantly in their level of knowledge regarding Solar Cooker. Hence, the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on knowledge test by selected students due to their exposure to live and videoed Exhibition cum Demonstration as educational programme for promotion of Solar Cooker according to level of intelligence was accepted in case of the students with high intelligence.

However, when the hypothesis that there will be no significant difference in the pretest and posttest mean scores achieved on the knowledge test by the selected students under two experimental conditions namely live and videoed Exhibition cum Demonstration as educational programmes independently for promotion of Solar Cooker according to the level of intelligence was tested, the calculated t values of 13.59 and 12.14 for the

students with high intelligence exposed to live and videoed Exhibition cum Demonstration independently were found to be highly significant at .01 level of confidence. This indicated that there was significant difference in the pretest and posttest mean scores of the students with high intelligence exposed to live and videoed Exhibition cum Demonstration independently.

Further examination of data revealed that the students with high intelligence under live Exhibition cum Demonstration increased their scores from 44.49 on pretest to 60.62 on posttest of the students under study. Whereas the pretest score of 50.67 of the students exposed to videoed Exhibition cum Demonstration increased upto 64.50 on posttest. Which indicated that there was significant difference in the pretest and posttest mean scores of the students with high intelligence exposed to live and videoed Exhibition cum Demonstration independently as educational programme. Hence, the hypothesis that there will be no significant difference in the pretest and posttest mean scores achieved on the knowledge test by the selected students under two experimental conditions namely live and videoed Exhibition cum Demonstration as educational programme independently for promotion of Solar Cooker according to the level of intelligence was rejected in case of the students with high intelligence exposed to two selected strategies.

When the data were analysed to test the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on knowledge test by lthe selected students due to their exposure to live and videoed Exhibition cum Demonstration as educational programme for promotion of Solar Cooker according to the level of intelligence was tested, the calculated F value of .298 for the students with low intelligence was found to be insignificant at .05 level of confidence. This indicated that the students with low intelligence did not differ significantly in their knowledge level due to two selected strategies namely live and videoed Exhibition cum Demonstration.

Hence the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on knowledge test by the selected students due to their exposure to live and videoed Exhibition cum Demonstration as educational programme for promotion of Solar Cooker according to the level of intelligence was accepted in case of the students with high intelligence.

However, the hypothesis that there will be no significant difference in the pretest and posttest mean scores achieved on the knowledge test by the selected students under two experimental conditions namely live and videoed Exhibition cum Demonstration as educational programmes independently for promotion of Solar Cooker according to the level of intelligence

was tested the data revealed that the calculated t values of 9.25 and 6.39 for the students with low intelligence exposed to live and videoed Exhibition cum Demonstration independently were found highly significant at .01 level of confidence. This indicated that there was significant difference in the pretest and posttest mean scores of the students with low intelligence exposed to live and videoed Exhibition cum Demonstration independently as educational programme.

Further examination of data revealed that the students with low intelligence under live Exhibition cum Demonstration increased their scores from 38.56 on pretest to 52.75 on posttest whereas the pretest score of 45.88 of the students exposed to videoed Exhibition cum Demonstration increased upto 56.73 on posttest scores. This indicated that there was significant difference in the pretest and posttest mean scores of the students with low intelligence exposed to two selected strategies independently as educational programmes. Hence the hypothesis that there will be no significant difference in the pretest and posttest mean scores achieved on the knowledge test by the selected students under two experimental conditions namely live and videoed Exhibition cum Demonstration as educational programme independently for promotion of Solar Cooker according to the level of intelligence was rejected in case of the students with low intelligence exposed to live and videoed Exhibition cum Demonstration.

This leads to conclude that there was no significant difference in the adjusted posttest scores of the students with high and low intelligence exposed to live and vidoed Exhibition cum Demonstration as educational programmes. This indicated that both the selected strategies were equally effective in increasing the knowledge of the students with high and low intelligence. Whereas there was significant difference in the pretest and posttest mean scores of the students with high and low intelligence, for each of the strategies which independently increased significantly.

3.4 Relative Effectiveness Within the Selected Strategies Namely Live/ Videoed Exhibition cum Demonstration as Educational Programme According to the Selected Variables for Promotion of Solar Cooker

In order to judge the relative effectiveness within the selected strategies, the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on the knowledge test by the selected students due to their exposure to live and videoed Exhibition cum Demonstration as educational programme in relation to selected variables namely place of habitation, class of study, sex and level of intelligence was tested for the students exposed to Live Exhibition cum Demonstration the calculated F values of 12.34 and 7.19 according to place of habitation and class of study

respectively were found to be highly significant at .01 level of confidence. This indicated that there was significant difference in the gain in knowledge of the students exposed to Live Exhibition cum Demonstration according to the selected variables place of habitation and class of study.

Table 19. Distribution of the Mean Scores Within the Selected Strategy Namely Live Educational Programme According to Selected Variables

Variables	Pretest Mean	Posttest Mean	t	F
Urban (N = 66)	38.66	50.90	10.28** (65 df)	12.34++ (1 x 128 df)
Rural (N = 63)	44.76	63.06	12.76** (62 df)	
9th Std. (N = 68)	38.08	51.14	11.43** (67 df)	7.19++ (1 x 128 df)
11th Std. (N = 61)	45.60	63.19	11.43** (60 df)	
Girls (N = 70)	42.77	57.37	10.64** (69 df)	.435 (1 x 128 df)
Boys (N = 59)	40.30	56.22	11.91** (58 df)	
HIQ (N =67)	44.49	60.62	13.59** (66 df)	1.24 (1 x 128 df)
LIQ (N = 62)	38.56	52.75	9.25** (61 df)	

F value ++ (P < .01)

t value ** (P < .01)

Further examination of the mean scores according to place of habitation revealed that the pretest mean scores of 38.66 increased upto 50.90 on posttest for the students from urban school and pretest mean scores of 44.76 increased upto 63.06 on posttest for the students from rural schools. Which indicated that Live Exhibition cum Demonstration was more effective for the students from rural schools.

The examination of the mean scores according to class of study revealed that the pretest mean scores of 38.08 increased upto 51.14 on the posttest for the 9th standard students and pretest mean scores of 45.60 increased upto 63.19 on posttest mean scores for 11th standard students. This indicated that Live Exhibition cum Demonstration was found to be more effective for the 11th standard students.

However, the calculated F value of .43 and 1.24 for the students exposed to Live Exhibition cum Demonstration according to the sex and level of intelligence were found to be insignificant at .05 level of confidence. This indicated that there was no significant difference in the gain in knowledge of the students exposed to Live Exhibition cum Demonstration according to sex and level of intelligence as a variable.

Hence, the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on knowledge test by the selected students due to their exposure to

Live and Videoed Exhibition cum Demonstration as educational programme in relation to selected variables namely place of habitation and class of study, was rejected. However, it was accepted in case of the sex and level of intelligence for the students who were exposed to Live Exhibition cum Demonstration.

When the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved on knowledge test by the selected students within the experi--mental condtions namely live/videoed Exhibition cum Demonstration as educational programme in relation to selected variables namely place of habitation, class of study, sex and level of intelligence for promotion of Solar Cooker was tested for the students exposed to Live Exhibition cum Demonstration the calculated t values according to place of habitation, class of study, sex and level of intelligence respectively as per table 19 were found to be highly significant at .01 level of confidence. This indicated that Live strategy was found to be effective in increasing the knowledge level of the students irrespective of the selected variables.

This was supported by Kaur J. and Khanna's (1970) experi--mental study on the relative effectiveness of four selected visual instructional aids, which revealed that the visual instructional aids were effective in the learning of the subject matter of nutrition by VIth and VIIth standard students.

A study by Machula (1976) supported on experiment to determine effective responses would result from exposure to three different forms of media namely Videotape, Audiotape and printed media presenting the same content revealed that the subjects receiving the audiotape version had learned signi--ficantly less than those receiving in other treatments.

Hence the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved on knowledge test by the selected students within the experi--mental conditions namely live/videoed Exhibition cum Demonstration as educational programme in relation to selected variables namely place of habitation, class of study, sex and level of intelligence was rejected in case of the students exposed to Live Exhibition cum Demonstration.

When the data were analysed to test the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on the knowledge test by the selected students due to their exposure to Live and Videoed Exhibition cum Demonstration as educational programme in relation to selected variables namely place of habitation, class of study, sex and level of intelligence was tested for the students exposed to videoed Exhibition cum Demonstration the calculated F value of .034 according to the place of habitation was found to be insignficant at .05 level of confidence. This indicated that

there was no significant difference in the gain in knowledge of the students from urban and rural schools. Videoed strategy was found to be effective in increasing the gain in knowledge of the students from urban and rural schools.

Table 20. Distribution of the Mean Scores Within the Selected Strategy Namely Videoed Educational Programme According to Selected Variables

Variables	Pretest Mean	Posttest Mean	t	F
Urban (N = 76)	52.07	63.03	6.38** (75 df)	.034 (1 x 146 df)
Rural (N = 71)	44.64	58.73	15.45** (70 df)	
9th Std. (N = 83)	51.03	58.16	5.36** (82 df)	37.82++ (1 x 146 df)
11th Std. (N = 64)	45.18	64.57	21.36** (63 df)	
Girls (N = 75)	50.42	63.13	11.93** (74 df)	11.39++ (1 x 146 df)
Boys (N = 72)	46.47	56.61	6.59** (71 df)	
HIQ (N = 80)	50.67	64.50	12.14** (79 df)	6.968++ (1 x 146 df)
LIQ (N = 67)	45.88	56.73	6.39** (66 df)	

F Value ++ (P < .01)

t Value ** (P < .01)

However, the calculated F values of 37.82, 11.39 and 6.968 according to the class of study, sex and level of intelligence was found to be highly significant at .01 level of confidence in increasing the gain in knowledge of the students exposed to videoed Exhibition cum Demonstration. This indicated that there was significant difference in the knowledge level of the students exposed to videoed strategy according to class of study, sex and level of intelligence.

Further examination of the mean scores according to class of study revealed that the pretest mean scores of 51.03 increased upto 58.16 on the posttest scores of 9th standard students and the pretest mean scores of 45.18 increased upto 64.57 on the posttest scores of 11th standard students. Which indicated that videoed Exhibition cum Demonstration was more effective for the students from 11th standard.

The examination of the mean scores according to sex of the students revealed that the pretest mean scores of 50.42 increased upto 63.13 on the posttest scores of the girls and pretest mean scores of 46.47 increased upto 56.61 on the posttest for the boys. This indicated that videoed Exhibition cum Demonstration was more effective for the girls as compared to boys.

This was supported by Laul's study (1989) on a comparative study on video cassette alone as well as along with handouts regarding adequate nutrition of low cost to the students

revealed that both informative and persuasive video cassettes were found effective for knowledge gain among the girls and boys, but the boys showed more gain through persuasive video film.

This was supported by Puri, and Khanna's (1969) study on role of instructional film in subject matter learning by students of rural schools revealed that the film alone was effective as a method of teaching and differences in learning between the sexes were found to be significant.

This was supported by Chetanlal's (1982) study on the relative effectiveness of graphic aids and projected aids enriched with museum experience in teaching food and digestion to VII standard students revealed that the mean scores of girls and boys differed significantly.

The examination of the mean scores according to level of intelligence of the students revealed that the pretest mean scores of 50.67 increased upto 64.50 on the posttest scores of the students with high intelligence and pretest mean scores of 45.88 increased upto 56.73 on the posttest for the students with low intelligence. This indicated that videoed Exhibition cum Demonstration was more effective for the students with high intelligence.

This was supported by Gangoli's study (1985) on a comparative study of the effectiveness of openended approach of doing physics experiments versus Traditional approach at higher secondary students, revealed that within the experimental group students with high intelligence differed from students with low intelligence.

Hence the hypothesis that there will be no significant difference in the adjusted posttest mean scores achieved on the knowledge test by the selected students due to their exposure to Live and Video Exhibition cum Demonstration as educational programme in relation to selected variables namely place of habitation was accepted, but it was rejected in case of the class of study, sex and level of intelligence for the students who were exposed to videoed Exhibition cum Demonstration.

When the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved on knowledge test by the selected students within the experi-mental conditions namely Live/Videoed Exhibition cum Demonstration as educational programme in relation to selected variables namely place of habitation, class of study, sex and level of intelligence for promotion of Solar Cooker was tested for the students exposed to videoed Exhibition cum Demonstration. The calculated 't' values according to place of habitation, class of study, sex and level of intelligence respectively as per table 20 were found to be highly significant at .01 level of confidence. This indicated that videoed strategy was found to be effective in increasing the knowledge level of the students irrespective of the selected variables.

A study by Machula (1976) supported by an experiment to determine effective responses would result from exposure to

three different forms of media namely videotape, audiotape and printed media presenting the same content revealed that the subjects receiving the audiotape version had learned significantly less than those receiving the other treatments.

Hence, the hypothesis that there will be no significant difference in the mean scores of pretest and posttest achieved on knowledge test by the selected students within the experi--mental conditions namely live/videoed Exhibition cum Demonstration as educational programme in relation to selected variables namely place of habitation, class of study, sex and level of intelligence was rejected in case of the students exposed to videoed Exhibition cum Demonstration.

Major Findings

1. There was no significant difference in the adjusted post--test mean scores indicating no difference in gain in knowledge of the students treated with two selected strategies. However, there was significant difference in the gain in knowledge of the students under study exposed to the two selected strategies due to selected variable namely place of habitation.

2. There was significant difference in the pretest and post--test mean scores indicating gain in knowledge of the students under two experimental conditions namely live and videoed Exhibition cum Demonstration as a result of their

exposure to these strategies independently. The findings further revealed that there was significant gain in knowledge of the students under study under each of the selected strategies due to the selected variables namely place of habitation, class of study, sex and level of intelligence.

3. There was no significant difference in the adjusted post--test mean scores indicating no difference in gain in knowledge of the students under study within the two selected strategies namely Live/Videoed Exhibition cum Demonstration as educational programme. However, further examination of data revealed that there was significant difference in terms of gain in knowledge of the students under study within the Live strategy due to selected variables namely place of habitation and class of study, and within the videoed strategy due to selected variables namely class of study, sex and level of intelligence.

4. There was significant difference in the pretest and post--test mean scores of the students under two experimental conditions namely live/videoed Exhibition cum Demons--tration indicating gain in knowledge as a result of their exposure to these two strategies. Further examination of data revealed that there was significant difference in gain in knowledge of the students under each of the two selected strategies in relation to selected variables namely place of habitation, class of study, sex and level of intelligence.

Overall Conclusion

Overall there was no significant difference between the strategies in increasing the gain in knowledge of the students under study and both the strategies namely Live and Videoed Exhibition cum Demonstration were found effective independently in increasing the gain in knowledge of the students under study. This fact could be due to the reason that both the selected strategies which were developed and presented were comparable in terms of content covered as well as mode of presentation. As mentioned in the earlier chapter the same script, graphics, music and presentation of Exhibition cum Demonstration was followed in both the selected strategies for educational programme.

Therefore it can be concluded that the educational strategies which were developed and presented equally created similar effect to the students under study. Hence, there was no significant difference in their gain in knowledge on account of these strategies.

When the relative effectiveness of the two selected strategies in terms of increase in gain in knowledge according to the selected variables namely place of habitation, class of study, sex and level of intelligence was studied no significant difference was found between the strategies according to class of study, sex and level of intelligence. Whereas there was significant difference in the gain in knowledge of the students

exposed to two selected strategies according to the variable place of habitation.

This particular relative effectiveness between the strategeis could be attributed to the following reasons.

The findings regarding class of study, sex and level of intelligence revealed that there was no significant difference in the gain in knowledge of the students under study on account of the strategies. The reason for both the strategies being effective could be due to that both the selected strategies were developed and presented equally for promotion of Solar Cooker.

However, the findings regarding the place of habitation revealed that there was significant difference in the gain in knowledge of the students from rural schools exposed to two selected strategies. Live strategy was found to be more effective for the students from rural schools. The reason for Live strategy being more effective for the students could be that they are exposed to the entertainment programme through T.V. and private channels but they are not exposed to the educational programme through T.V. or private channels. Secondly it also could be due to the reason that the Live Exhibition cum Demonstration was direct experience whereas the videoed programme was indirect experience, and students from the rural schools are exposed to direct experience. Which could have helped them to learn the content through different methods.

Here the implications could be that while selecting and developing the educational programme through different strategies for popularization of Solar Cooker a teacher/ promoter should check the appropriateness of the strategies according to the place of habitation of the students. If videoed strategy is planned to be used for educational programme for rural area then supplementary material should be provided to them along with the videoed educational programme.

When the effectiveness of the two selected strategies namely Live and Videoed Exhibition cum Demonstration as educational programme was tested independently to study the difference in the pretest and posttest mean scores in relation to selected variables namely place of habitation, class of study, sex and level of intelligence, both the strategies were found effective independently in increasing the gain in knowledge of the students. This could be due to the reason that imparting the knowledge by using different methods and mode of presentation creates better understanding in the students.

Therefore, it can be concluded that in imparting the new knowledge for the promotion of Solar Cooker any of the two strategies can be used irrespective of the selected variables.

When the relative effectiveness within the selected strategies namely Live/Videoed Exhibition cum Demonstration was tested, Live strategy was found to be effective for the students

according to their sex and level of intellgience, but in case of their place of habitation and class of study they differed. Live strategy was found more effective for the students from rural schools and the students from 11th standard.

The difference in the gain in knowledge due to place of habitation and class of study could be due to the reason that Live strategy provided the direct experience as discussed earlier for the students from rural schools. Live strategy was more effective for the students from 11th standard for which the reason could be that there is a difference in age and level of understanding of the 11th standard students when compared to the 9th standard students. Hence, there was significant difference in the gain in knowledge due to the variables place of habitation and class of study.

Here, the implications could be that while planning and developing the Live strategies for popularization of Solar Cooker these two variables should be kept in mind.

When the relative effectiveness within the selected strategies namely Live/Videoed Exhibition cum Demonstration was tested, videoed strategy was effective for the students according to their place of habitation, but in case of their class of study, sex and level of intelligence, they differed.

This particular relative effectiveness within the videoed strategy due to selected variables could be attributed to the followng reasons.

The videoed strategy was found to be more effective for the 11th standard students which could be due to the difference in age and level of understanding of 11th standard student when compared to the students from 9th standard.

There was significant difference in the gain in knowledge according to sex as a variable and videoed strategy was found to be more effective for the girls as compared to boys, which could be due to the sex role performed by the girls in daily life situation and understanding the problems easily as compared to the boys.

There was significant difference in the gain in knowledge according to the level of intellgience as a variable and videoed strategy was found to be more effective for the students with high intelligence. Which could be due to the reason that students with high intelligence have better grasping power which might have helped them understanding the content with a different methods and mode of presentation.

Hence, the implication could be that while planning and developing videoed strategy for popularization of Solar Cooker the variable namely class of study, sex and level of intelligence should be considered.