



Effectiveness of Instructional Strategies on the Achievement of Secondary School Students

KEYWORDS

Instructional Strategies and Achievement

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ABSTRACT *Instructional Strategies, designed to measure the Achievement of the 9th graders of secondary schools, were developed by the investigator in two formats - Modular Instructional Strategy (I1), Multimedia Instructional Strategy (I2) and third group was taken as a Control Group (I0) - to observe the effect of teaching through them on some concepts of English. The study was experimental in nature and was conducted on the sample of 500 students. Instructional Strategies were taken as independent variable whereas Achievement as a dependent one. The results showed that F ratios were significant for the main effect of Instructional Strategies. For intercorrelation both the strategies were combined into one format. The intercorrelation coefficient between the variables of Instructional Strategy and Achievement was positive and significant at .01 level of confidence.*

INTRODUCTION

Instructional Strategies determine the approach a teacher uses to educate students and help them achieve their learning objectives. Instructional strategies are techniques teachers use to help students become independent, strategic learners. For the present investigation variables of Instructional Strategies -Modular and Multimedia- have been selected to study their effect on Achievement of Secondary School students studying through Central Board of Secondary Education (C.B.S.E.), on the basis of considerations Research studies of Nath (2000), Pecoraro (2002), Haukoos (2007), Wolters (2011), Alias and Sira (2012) which showed significant effect of Modular Instructional Strategy on Achievement.

However researches conducted by Culbertson et. al. (2004), could not find any significant relationship of Modular Instructional Strategy on Achievement.

Researches earlier done in the field of Multimedia Instructional Strategy have shown Multimedia as a main factor having significant effect on Achievement. Studies by Stith (2004), Zheng et al. (2008), Rolfe and Gray (2011), Rusan-ganwa (2013) showed significant effect of Multimedia Instructional Strategy on Achievement.

However researches conducted by Lewis (2005) could not find significant effect of Multimedia Instructional Strategy on Achievement. These studies showed the effect of variables of Modular and Multimedia Instructional Strategies taken up singly on Achievement, but the conjoint effect of all the variables on Achievement may present a different picture.

OBJECTIVES OF THE STUDY:

1. To work out differences on Achievement of students taught through Modular and Multimedia Instructional Strategies and that of the students of the Control group at the Secondary Stage.
2. To work out the correlation between the variables of Instructional Strategy and Achievement of the Secondary Stage students.

HYPOTHESES OF THE STUDY:

1. There will be no significant differences on the Achievement of students taught through Modular and Multi-

media Instructional Strategies and that of the students of the Control Group.

2. The correlation between the variables of Instructional Strategy and Achievement will be positive and significant.

DESIGN OF THE STUDY:

The study was experimental in nature in which the variable of instructional strategies was studied at three levels - Modular Instructional Strategy (I1), Multimedia Instructional Strategy (I2) and Control Group (I0). The study was designed on the Pre Test – Post Test pattern. The same Achievement test was used at both the levels of Testing.

SAMPLE OF THE STUDY:

A random sample pool of 500 students (boys & girls) of class 9th drawn from five schools of Chandigarh was taken up for the purpose of investigation.

TOOLS USED:

1. Modular and Multimedia Instructional Strategies (Developed by the Investigator)
2. Achievement Test (Developed by the Investigator)

DEVELOPMENT OF INSTRUCTIONAL STRATEGIES:

The Content for Instructional Strategies was drawn from English Grammar pertaining to the topics of Articles, Adjectives, Modals, Active / Passive Voice and Punctuation.

DEVELOPMENT OF ACHIEVEMENT TEST

The test was meant for the students of age group 14 - 16 years studying in class 9th. The achievement tests was based on objective type test pattern, & contain 60 test items. The reliability of the achievement test of as found by the test-retest method was 0.78. The content validity of the achievement test was found by relating the content with the objectives.

DATA ANALYSIS AND INTERPRETATION

The main effect of Instructional Strategies was analysed over three levels, Modular Instructional Strategy (I1), Multimedia Instructional Strategy (I2) and the Control Group (I0).

Table-1

F- Ratio showing differences among the groups of

Modular Instructional Strategy (I1), Multimedia Instructional Strategy (I2) and the Control Group (Io) of students on Achievement

Instructional Strategies	No of Cases	Mean	Std. Deviation (SD)	Sum Squares (SS)	df	Mean Square	F- ratio
Modular - Instructional Strategy (I1)	48	87.59	18.45	2137.54	2	1068.77	35.94
Multimedia -Instructional Strategy (I2)	48	116.27	27.59				
Control Group (Io)	48	52.31	10.43				

The F- ratio for the Instructional strategies was 35.64 which is significant at .01 level. This implies that the differences among the three groups have significant effect on Achievement of the students. To analyse these differences further t - ratios were computed which are presented in the table -2. The comparison of the Mean values of the groups of Modular Instructional Strategy (I1), Multimedia Instructional Strategy (I2) and the Control Group (Io) is shown in the Figure- 1

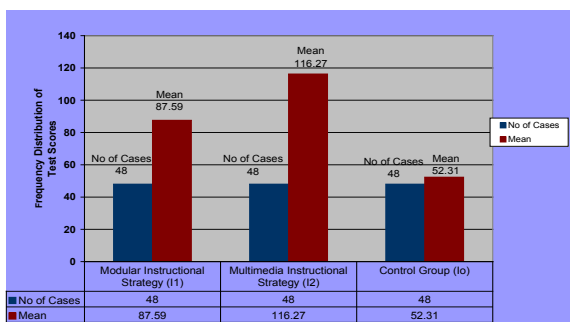


Figure: - 1

Bar diagram showing differences among the Means of two groups of Modular Instructional Strategy (I1), Multimedia Instructional Strategy (I2) and the Control Group (Io) on Achievement

Table-2
t - ratios for the difference in means of two Experimental Groups of Instructional Strategies (Modular, Multimedia) and Control Group of Students

Groups	No of Students	Mean	S.D.	t- ratios	Level of Significance
I	I1	85.71	17.36	7.38	* Significant at .01 level
	I2	102.46	26.03		
II	I1	85.71	17.36	5.93	* Significant at .01 level
	Io	51.47	9.78		
III	I2	102.46	26.03	9.74	* Significant at .01 level
	Io	51.47	9.78		

* Significant at .01 level - 2.63 for 94 degree of freedom
 ** Significant at .05 level - 1.99 for 94 degree of freedom

Groups

1. Modular Instructional Strategy (I1)
2. Multimedia Instructional Strategy (I2)
3. Control Group (No Teaching Io)

The results of table -2 are interpreted as follows:

The t- ratio (7.38) between I1 and I2 is significant at .01 level. This implies that the differences between the two of groups of Modular Instructional Strategy (I1) and Multimedia Instructional Strategy (I2) are significant. The mean value of students taught through Multimedia Instructional Strategy (102.46) is higher than that of the students taught through Modular Instructional Strategy (85.71). It clearly shows that Multimedia Instructional Strategy Group (I2) of students has significantly higher Achievement than that of the group taught through Modular Instructional Strategy (I1).

The t- ratio (5.93) between Modular Instructional Strategy (I1) and Control Group (Io) is significant at .01 level in favour of the group taught through Modular Instructional Strategy (Mean 85.71)

The t- ratio of 9.74 between the group taught through Multimedia Instructional Strategy (I2) and Control Group (Io) is significant. This shows that Multimedia Instructional Strategy (I2) with the mean of 102.46 is higher than that of the Control Group (Io) with the mean value of 51.47 on Achievement. The comparison of the Mean values of two Experimental Groups and Control Group of Students is shown in Figure -2

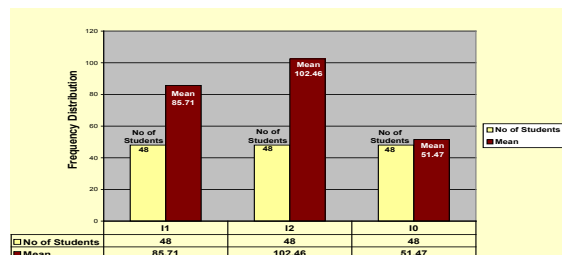


Figure: - 2

Bar diagram showing Means of Achievement of two Experimental Groups of Instructional Strategies (Modular I1, Multimedia I2) and Control Group (Io) of Students

CORRELATION ANALYSIS

The results of the correlation between the variables of Instructional Strategy (Modular and Multimedia combined together) and Achievement of the total sample are reported in table - 3

Table - 3
Correlation Matrix Showing the Inter-Correlation between the Variables of Instructional Strategy and Achievement

Sr. No	Variables	Instructional Strategy	Achievement
1	Instructional Strategy	1.000	
2	Achievement	.837**	1.000

(Total sample: N= 500), df - 498
 * Significant at .01 level (0.115)

The table -3 depicts that Instructional Strategy is positively and significantly correlated (r = .837) with Achievement at .01 level. Thus, the relationship exhibits that the higher the

score on Instructional Strategy, the better is the Achievement of students. So, Instructional Strategy is a good predictor of Achievement of students.

DISCUSSION OF RESULTS

The results obtained from the analysis of tables from 1 to 3 are discussed in the context of hypotheses formulated earlier. The results already arrived at by various related studies have also been compared with the results of present study.

The first hypothesis of the study states, "There will be no significant differences on the Achievement of students taught through Modular and Multimedia Instructional Strategies and that of the students of the Control Group."

The F- ratio for Instructional Strategies (Modular I1, Multimedia I2 and the Control Group I0) vide table no -1 is significant at .01 level. This implies that the differences among the three groups based on Modular Instructional Strategy I1, Multimedia Instructional Strategy I2 and Control Group I0 are significant with respect to the Achievement of the students. To analyse these differences further t - ratios were also computed and the result indicate the following:

The Achievement of the group taught through Multimedia Instructional Strategy (I2) is better than that of the group taught through Modular Instructional Strategy (I1) and also that of the Control Group (I0).

- The Achievement of the group taught through Modular Instructional Strategy (I1) is higher than that of that of the Control Group (I0).

So, the first hypothesis of the study is rejected. Studies by Nath (2000), Pecoraro (2002), Haukoos (2007), Wolters (2011) and Alias and Sira (2012) have shown that modular instructional strategy is quite effective in ensuring Achievement.

On the other hand the researches by Stith (2004), Zheng et al. (2008), Rolfe and Gray (2011) and Rusanganwa (2013) have shown the effectiveness of multimedia instructional strategy on Achievement. These studies have shown the effectiveness either modular strategy or multimedia taken up singly to observe their effect on Achievement. However, the researcher could not find any research evidence to exhibit the superiority of multimedia or modular Instructional Strategies in comparison with each other.

The second hypothesis of the study states, "The correlation between the variables of Instructional Strategy and Achievement will be positive and significant."

The result of the correlation coefficient vide table no -3 indicates that there exists a positive and significant correlation between Instructional Strategy and Achievement.

So, the hypothesis of the study is accepted. The result of the present study is in consonance with the conclusions of Pecoraro (2002), Wolters (2011) and Alias and Sira (2012) showing a positive and significant correlation between modular Instructional Strategy and Achievement, whereas the researches by Zheng et al. (2008), Rolfe and Gray (2011), and Rusanganwa (2013) showed a positive and significant correlation between multimedia Instructional Strategy and Achievement.

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