

ROLE OF COGNITIVE STYLES ON ATTAINMENT OF CONCEPTS IN RELATION TO ATTITUDE

Dr. Parvinder K. Kamboj* & Payal**

ABSTRACT

This study sought to investigate the role of cognitive styles in attainment of Punjabi language concept in relation to attitude towards Punjabi. The study was conducted on 80 students of 9th grade of Abohar Town. A pre- test and post-test experimental design was employed. The variable of cognitive styles was studied at two levels, field dependent and field independent and attitude towards Punjabi was also studied at two levels i.e. favourable attitude and unfavourable attitude. Sample was divided into two groups on the basis of attitude towards Punjabi. The main dependent variable was attainment of Punjabi language concepts. Attainment was calculated as the difference in post-test and pre-test scores for each subject. A 2x2 analysis of variance was used and following results emerged. i) Favourable attitude has a significant effect on gain of concepts in Punjabi grammar. ii) A significant difference exists between gain scores of concepts of Punjabi grammar of field dependent and field independent groups of students. Gain of concepts of Punjabi grammar was significantly higher in the groups of Field independent students than that of field dependents one. iii) No significant interaction exists for gain of concepts of Punjabi grammar between attitude based groups and cognitive styles based groups.

INTRODUCTION

Researches on cognitive styles and learning strategies have great significance on teaching. "On one hand, after learning students' different learning styles, teachers can adopt relative (corresponding) teaching methods and strategies; on the other hand, students can choose appropriate learning strategies if they know their own cognitive styles, which can promote their autonomy and help them become successful learners" (Ma, 2008, p. 63).

COGNITIVE STYLES

Cognitive styles refer to the preferred way, individual processes information or the different ways in which children and adults think and learn. Cognitive styles, defined as

"Consistent and rather enduring tendencies or preferences within an individual ... those general characteristics of intellectual functioning ... that pertain to you as an individual, and that differentiate you from someone else" (Brown, 2007).

It has many classifications. It is classified into field-independent style and field-dependent

style, analytic style and global style, reflective style and impulsive style, and tolerance and intolerance of ambiguity etc.

ATTITUDE

Attitude of learner towards a particular subject plays an important role in the process of teaching and learning. The quality of the educational experience provided by the teacher, method of teaching; curriculum and assessment are all highly influential in the formation of student attitudes towards a subject.

Allport (1935) after reviewing various definitions consider that "Attitude is a mental and neural state of readiness to respond organised through experience exerting a directive and/or dynamic influence on behaviour". The definition suggests that attitude is a state of mind. It is organised in nature and form basis for our action or response to the stimulus. Although it is dynamic in nature but the direction of response remains more or less constant, rather refinement of response takes place with the time, which represents dynamicity.

*Asstt. Professor, DAV College of Education, Abohar (Punjab)

**Research Scholar, DAV College of Education, Abohar (Punjab)

OBJECTIVES OF THE STUDY

1. To develop an Attitude towards Punjabi Scale [APS].
2. To compare the attainment of concepts of groups having different cognitive styles.
3. To compare the attainment of concepts of groups having different attitudes.
4. To study the interaction effect of the cognitive styles and attitude.

HYPOTHESES OF THE STUDY

- H1** There exists no significant difference in means of scores of attainment of concepts in relation to different cognitive styles.
- H2** There exists no significant difference in means of scores of attainment of concepts in relation to different attitudes towards Punjabi.
- H3** There exists no significant interaction in means of scores of attainment of concepts in relation to different cognitive styles and attitudes towards Punjabi.

TOOLS USED

1. Attitude towards Punjabi Scale [APS] was developed by the investigators.
2. The Group Embedded Figure Test (GEFT) 1971 by Philp K. Oltman, Evelyn Raskin & Herman A.
3. An Achievement Test on the Segment of Punjabi by Kumar (2012).
4. Instructional material developed by the investigators.

RESEARCH METHODOLOGY

Researchers tried her best to establish genuineness, authenticity and trustworthiness of data collected and adopted a systematic procedure to collect the data.

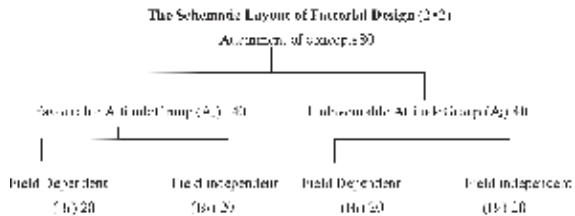
SAMPLE OF THE STUDY

An initial sample of 120 students of 9th grade from two government senior secondary schools from Abohar was selected. To equalise the groups some students were rejected. Finally 40 students from each school were taken. In total, the study was restricted to 80 students. An additional

sample of 75 students was taken for the validation of the attitude scale. Purposive simple random technique was used for selection of the sample and schools were selected according to convenience..

DESIGN OF THE PRESENT STUDY

For the purpose of the present investigation a pre- test and post-test factorial design was employed. A 2x2 analysis of variance was used for the two independent variables i.e. cognitive styles and attitude towards Punjabi. The main dependent variable was attainment of Punjabi language concepts. The schematic layout of the factorial designs is given in Figure 1.



TOOLS USED

1. Attitude towards Punjabi Scale [APS].
2. The Group Embedded Figure Test (GEFT) 1971 by Philp K. Oltman, Evelyn Raskin, and Herman A. Witken.
3. An achievement test on the segment of Punjabi by Kumar (2012).
4. 20 lesson plans related to topics of Punjabi grammar were developed by investigators.

PROCEDURE OF THE STUDY

The investigators followed certain procedural steps for the study. Firstly, selected students were categorized into two group viz., Favourable Attitude Group and Unfavourable Attitude Group. Secondly, the Group Embedded Figure Test (GEFT) 1971 by Philp K. Oltman, Evelyn Raskin, and Herman A. Witken was administered to identify the cognitive styles of the students. Thirdly, achievement test by Kumar P. (2012) was conducted as pre-test. Fourthly, Treatment was given to the both groups. There were 20 lesson transcripts and students were taught 20 Punjabi grammatical concepts in ten days. Fifthly, at the

end of the teaching same achievement test was used as post-test. Finally, the collected data was scored and statistical treatment was given.

STATISTICAL TECHNIQUES USED

1. Mean, SD, Kolmogorov-Smirnov test (K-S test).
2. 2x2 factorial Analysis of Variance.

ANALYSIS AND INTERPRETATION OF DATA

The present study being experimental in nature, raw data for the study was obtained using control group pre-test-post-test experimental design. For the sake of convenience and keeping in view the nature and objectives of the study, the results have been presented as following.

TESTING NORMALITY OF THE SAMPLE

The results of the calculation has been summarised in the Table 1.

Table 1: Results of Kolmogorov-Smirnov test on achievement scores

Sr. no.	Sample	C _{po} -C _{pe} _{max}	Critical value	
			0.05 level	0.01 level
1.	Favourable Attitude Group	0.0542	6.32	2.977
2.	Unfavourable Attitude Group	0.0363	6.32	2.977

Table Values:

|C_{po}-C_{pe}|_{max}.(0.05)
|C_{po}-C_{pe}|_{max}.(0.01)

$$\frac{1.36}{\sqrt{N}} = \frac{1.36}{\sqrt{40}} \leq 6.3246 \quad \frac{1.63}{\sqrt{N}} = \frac{1.63}{\sqrt{40}} \leq 0.2577$$

It is observed from the Table 1 that none of the |C_{po}-C_{pe}|_{max} calculated value exceeded the respective critical value, is indicating that normality is maintained in all the samples.

ANALYSIS OF VARIANCE OF TOTAL GAIN SCORES

The analysis of the data obtained was done for

the testing of the hypotheses concerning the interaction. A 2x2 factorial design was applied to the present study. The degree of freedom, sum of squares and F-ratio have been presented in Table 2

Table 2: Summary Analysis of Variance (2x2) Factorial Design

Source	df	Sum of Squares	Variance	F-ratio
Attitude (A)	1	183.012	183.012	10.29**
Cognitive Style (B)	1	117.613	117.61	6.61*
Interaction (AxB)	1	6.6125	6.6125	0.372
Within groups	76	1350.95	17.77	

*Significant at 0.05 level of significance

**Significant at 0.01 level of significance

(Critical Value 3.97 at 0.05 and 6.98 at 0.01 level, df 1, 76)

Attitude (A)

Table 2 reveals that the F-ratio for the difference of means of two groups of attitude is 10.29, which in comparison to table value is found to be significant at the 0.01 level of significance. Hence, the hypothesis H1: There exists no significant difference in means of scores of attainment of concepts in relation to different cognitive styles is rejected.

Cognitive Style (B)

It may be seen from the table 2 that the F-ratio for the difference of means of two groups of cognitive styles is 6.61, which is comparison to the table of value is found to be significant at 0.05 level of significance. The results indicate that two cognitive style groups are different in respect of gain scores. Hence, the null hypothesis H2: There exists no significant difference in means of scores of attainment of concepts in relation to different attitudes towards Punjabi is rejected.

Interaction Effect (AxB)

It may be seen from the table 2 that the F-ratio for the interaction between attitude and cognitive styles is 0.372, which in comparison to the table

value is not found to be significant even at 0.05 level of significance. It indicates that the two variables do not interact with each other. Thus, the null hypotheses H3: There exists no significant interaction in means of scores of attainment of concepts in relation to different cognitive styles and attitude towards Punjabi is accepted. The observed difference is just a matter of chance.

FINDINGS OF THE STUDY

On the basis of the analysis and interpretation of data, the following conclusions have been drawn:

1. A significant difference exists between gain scores of Punjabi grammar of favourable attitude groups and unfavourable attitude groups of students. As the mean gain score of favourable attitude groups is higher than that of unfavourable attitude groups, it may be concluded that favourable attitude has a significant effect on gain of concepts in Punjabi grammar.
2. A significant difference exists between gain scores of concepts of Punjabi grammar of field dependent and field independent groups of students. Gain of concepts of Punjabi grammar was significantly higher in the groups of field independent students than that of field dependents one.
3. No significant interaction exists for gain of concepts of Punjabi grammar between attitude based groups and cognitive styles based groups.

REFERENCES

- Allport, G.W. (1935). Attitudes, In Murchison, C. (Ed.). A Hand Book of Social Psychology, Worcester, Mass: Clark University Press, 798-844.
- Brown, H.D. (2007). Principles of language learning and teaching, 5th edition. White Plains: N.Y.: Pearson Education.
- Dornyei, Z. (2005). The psychology of the language learner: Individual differences in second language acquisition. Mahwah: NJ Lawrence Erlbaum Association Inc.
- Kumar, P. (2012). Effect of Bruner's concept attainment model on learning and retention in Punjabi in relation to cognitive styles and intelligence. Unpublished Ph.D. Thesis Panjab University Chandigarh.
- Littlemore, J. (2001). An empirical study of the relationship between cognitive style and the use of communication strategy. Applied Linguistics, 22, 241-265, doi:10.1093/applin/22.2.241, Retrieved from <http://dx.doi.org/10.1093/applin/22.2.241>
- Ma, Y. (2008). On cognitive style and selection of teaching strategies. Journal of Weinan Teachers College, 23(3), 63.
- Mahanta, D. (2014). Impact of Attitude and Self-Concept of the Students towards Mathematics upon their achievement in Mathematics. International Journal of Theoretical & Applied Sciences 6(1): 20-35
- Mather, N. (1994). Examiner's manual: Woodcock Johnson III Tests of Cognitive Abilities. Itasca, IL: Riverside.
- Rand, A. (1990). Introduction to objectivist philosophy, In H. Binswanger & L. Peikoff (Eds.) Introduction to Objectivist Epistemology (2nd Ed.), New York: Meridian, p.10.
- Riding, R.J. & Cheema I. (1991). Cognitive styles An overview and integration. Educational Psychology 11(3 & 4), 193-215.
- Shi, W. P. (2011). The effect of learning styles on learning strategy use by EFL learners. Journal of Social Sciences (15493652); 8(2), 230. Retrieved from <http://connection.ebscohost.com/c/articles/80239447/effect-learning-styles-learning-strategy-use-by-efl-learners>.
- Smith, P. L. & Ragan, T. J. (2005). Instructional Design. Hoboken, New Jersey: John Wiley & Sons.
- Yue, (2009). In Li, Lilian K.Y. (2012). A study of the attitude, self-efficacy, effort and academic achievement of City students towards research methods and statistics. Discovery SS Student E-Journal, 1, 154-183. Retrieved from <http://ssweb.cityu.edu.hk/download/RS/E-Journal/journal8.pdf>.