CHAPTER 6

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CHAPTER 6
Summary

6.0 INTRODUCTION

There is an urgent need to examine each individual learner living in different type of environment to identify exactly how he or she is likely to learn most effectively. To know about students (how, when, what and where- they learn best) is very much helpful to be aware of their learning process. No two persons have the same conception about himself or about world as the individual’s cognitions/thinking reflect his own environment, his wants, his goals, his experiences etc. Students learn in the performance of individualized tactics, techniques and strategies in learning. And to understand and to teach according to the various learning styles of students is essential to improve the effectiveness of teaching-learning process.

6.1 OPERATIONAL DEFINITIONS OF KEY TERMS USED

The following words used in the title are defined with a view to clarify the connotation in which they are use in the present study-

1. STUDY: The making of a search or inquiry; Systematic examination; Careful and minute research;

2. LEARNING STYLES: The way he/she prefers to learn;
Predisposition to adopt a particular learning strategy;
Habits or regular mental behaviors;
concerning Learning;
Hemispherical preference of cerebral.

3. CONCEPT
   ATTAINMENT: Achievement in test;
   Attainment in economics' test prepared by investigator.

4. LEARNERS: Students studying at +1 level in Sonipat district of Haryana.

5. INTELLIGENCE: Intellect;
   To understand;
   To think;
   To deal with;
   Measure by intelligence test.

6. SELF-CONCEPT: Totality of descriptions which a person holds for self;
   Self-image;
   Thinking aspect of self.

7. PRIVATE SCHOOLS: Managed by private organizations or individuals, either partially or totally.

8. GOVERNMENT SCHOOLS: Sole management of government officials.
9. URBAN SCHOOLS: Schools located in Urban area.

10. RURAL SCHOOLS: Schools located in Rural area.

6.2 LEARNING STYLES

The knowledge of learning styles helps the teacher in developing instructional design. Teaching individuals through their learning styles enhances their academic attainment & self-esteem/self-concept. Learning styles is a generic concept that frequently includes cognitive styles, personality styles, sensory modes etc. Learning styles includes habits of information processing representing the learner's typical mode of perceiving, thinking, problem-solving and remembering. Learning style may be determined to provide guidance to a student who is struggling academically or to modify delivery methods to better suit the diversity of learning styles in a classroom to ensure student learning.

Keefe (1982) perceives learning style as:

"characteristics cognitive, affective, and psychological behaviour that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment."

(Merriam and Caffarella, 1991, p.176) stated learning style as:

"an individual's characteristic way of processing information feeling, and behaving in learning situation."
Applying their research in hemispheric specialization, Reynolds et. al. defined learning styles as preferred modes of information processing. Three styles are specified: Left-dominant (active, verbal, analytic, and logical), right-dominant (receptive, non-verbal, spatial, and intuitive), and whole-brained (complementary, integrated, simultaneously left and right). Students with left-dominant learning styles may be better able to generate logical relationships among alternative scientific constructs than those with right-dominant learning styles where-as the latter may have the intrinsic capacity to understand abstract ideas.

This way of looking at learning styles is to determine hemispheric dominance. Whether person works as right-brained or left-brained. The researches related to brain confirms that both sides of the brain are involved in every activity, we know that the left side of brain is the seat of language and processes in a logical and sequential order, while the right side is more visual and processes intuitively, holistically, and randomly. The different researches have shown that the two different sides or hemispheres of the brain are responsible for different manners of thinking. The following table illustrates the differences between left-brain and right-brain thinking:

<table>
<thead>
<tr>
<th>LEFT-BRAIN</th>
<th>RIGHT-BRAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logical</td>
<td>Random</td>
</tr>
<tr>
<td>Sequential</td>
<td>Intuitive</td>
</tr>
<tr>
<td>Rational</td>
<td>Holistic</td>
</tr>
<tr>
<td>Analytical</td>
<td>Synthesizing</td>
</tr>
<tr>
<td>Objective</td>
<td>Subjective</td>
</tr>
<tr>
<td>Looks at parts</td>
<td>Looks at wholes</td>
</tr>
</tbody>
</table>
Every one has one particular style (either Left-brained or Right-brained) to work. Left-brained scholastic subjects focus on logical thinking, analysis and accuracy. Right-brained subjects focus on aesthetics, feeling and creativity.

6.3 INTELLIGENCE

Intelligence is a property of mind that encompasses many related mental abilities, such as the capacities to reason, plan, solve problem, think abstractly, comprehend ideas and learn.

Intelligence is the ability to undertake activities that are characterized by difficulty, complexity, adaptiveness to a goal, the emergence of originals, and a resistance to emotional forces.

"...... judgment, otherwise called good sense, practical sense, initiative, the faculty of adapting one's self to circumstances ...... auto-critique." ...... Alfred Binet

6.4 CONCEPT ATTAINMENT

The concept attainment is to define or identify by finding those attributes that are absolutely essential to the meaning of the concept and disregarding those that are not. Level of attainment of concept was tested through an achievement in economic attainment test.
6.5 **SELF-CONCEPT**

Self is the interaction of "I" and "Me" aspects. It is apparent that the "I" is private but that the "Me" is public or represent the social attitude. Self-concept is defined as the totality of description which a person holds for self. **Rosernberg (1979)** views the self-concept in three categories:

4. How you view yourself (the extant self),
5. How you would like to see your self (the desired self), and
6. How you show yourself to others (the presenting self).

**Franken (1994)** states that

"There is a great deal of research which shows that the concept is, perhaps, the basis for all motivated behavior. It is the self-concept that gives rise to possible selves, and it is possible selves that create the motivation for behavior."

6.6 **NEED OF STUDY**

It is generally observed that traditional methods of learning and teaching have failed to develop thorough understanding of the content to students. Parents and teachers are able to perceive the children and their natural tendencies of how they think, act and learn in different ways and in different situations. To know about students (how, when, what and where- they learn best) is very much helpful to be aware of their learning process. Teaching and thinking style of the teacher and learning and thinking style of the students differ because learning differences are not tied up to the understanding and thinking ability of the students. The issue of learning style is based on the concept of
cognitive style. Thinking and learning styles may be regarded as a link with intelligence as thinking and learning styles include the characteristics of cognitive, affective, physiological behaviour. The present study is an attempt to study the relationship of learning and thinking style preferences and intelligence.

6.7 STATEMENT OF THE PROBLEM

The statement of the problem for the present study reads as under:

"A Study of Learning styles in concept attainment in relation to learners' intelligence and self concept"

6.8 OBJECTIVES

The present study was carried out with the following objectives:

1. To study the relationship between cerebral hemispherical preference and concept attainment.

2. To study the relationship between cerebral hemispherical preference and intelligence.

3. To study the relationship between cerebral hemispherical preference and self-concept.

4. To study the relationship between:
i. Cerebral hemispherical preference (right and left) and Sex (male and female).

ii. Cerebral hemispherical preference (right and left) and Locality (rural and urban).

iii. Cerebral hemispherical preference (right and left) and types of school (government and private).

iv. Cerebral hemispherical preference (right and left) and Intelligence (high and low).

v. Cerebral hemispherical preference (right and left) and Self-concept (high and low).

vi. Cerebral hemispherical preference (right and left) and Concept-Attainment (high and low).

5. To study the difference of means between cerebral hemispherical preference and Intelligence.

6. To study the difference of means between cerebral hemispherical preference and Intelligence among the students of H.B.S.E. and C.B.S.E. affiliated schools.

7. To study the difference of means between cerebral hemispherical preference and Intelligence among the students of government and private schools.

8. To study the difference of means between cerebral hemispherical preference and Intelligence among rural and urban students.
9. To study the difference of means between cerebral hemispherical preference and Intelligence of male and female students.

10. To study the difference of means between cerebral hemispherical preference and Self-concept.

11. To study the difference of means between cerebral hemispherical preference and Self-concept among the students of H.B.S.E. and C.B.S.E. affiliated schools.

12. To study the difference of means between cerebral hemispherical preference and Self-concept among the students of government and private schools.

13. To study the difference of means between cerebral hemispherical preference and Self-concept among rural and urban students.

14. To study the difference of means between cerebral hemispherical preference and Self-concept of male and female students.

15. To study the inter-correlations among cerebral hemispherical preference, concept-attainment, self-concept and intelligence.

16. To study the interaction effect of intelligence and self-concept on cerebral hemispherical preference.

17. To study the interaction effect of intelligence and self-concept on concept attainment.
18. To study the interaction effect of schools affiliated to H.B.S.E. and C.B.S.E., locality and sex on cerebral hemispherical preference.

19. To study the interaction effect of schools affiliated to H.B.S.E. and C.B.S.E., locality and sex on concept attainment.

6.9 HYPOTHESES OF THE STUDY

In the present study the following null hypotheses had been tested-

1. There is no significant relationship between cerebral hemispherical preference and concept attainment.

2. There is no significant relationship between cerebral hemispherical preference and intelligence.

3. There is no significant relationship between cerebral hemispherical preference and self-concept.

4. There is no significant relationship between:

   i. Cerebral hemispherical preference (right and left) and Sex (male and female).
   
   ii. Cerebral hemispherical preference (right and left) and Locality (rural and urban).
   
   iii. Cerebral hemispherical preference (right and left) and types of school (government and private).
iv. Cerebral hemispherical preference (right and left) and Intelligence (high and low).

v. Cerebral hemispherical preference (right and left) and Self-concept (high and low).

vi. Cerebral hemispherical preference (right and left) and Concept-Attainment (high and low).

5. There is no significant difference of means between cerebral hemispherical preference and Intelligence.

6. There is no significant difference of means between cerebral hemispherical preference and Intelligence among the students of H.B.S.E. and C.B.S.E. affiliated schools.

7. There is no significant difference of means between cerebral hemispherical preference and Intelligence among the students of government and private schools.

8. There is no significant difference of means between cerebral hemispherical preference and Intelligence among rural and urban students.

9. There is no significant difference of means between cerebral hemispherical preference and Intelligence of male and female students.

10. There is no significant difference of means between cerebral hemispherical preference and Self-concept.
11. There is no significant difference of means between cerebral hemispherical preference and Self-concept among the students of H.B.S.E. and C.B.S.E. affiliated schools.

12. There is no significant difference of means between cerebral hemispherical preference and Self-concept among the students of government and private schools.

13. There is no significant difference of means between cerebral hemispherical preference and Self-concept among rural and urban students.

14. There is no significant difference of means between cerebral hemispherical preference and Self-concept of male and female students.

15. There are no significant inter-correlations among cerebral hemispherical preference, concept-attainment, self-concept and intelligence.

16. There is no significant interaction effect of intelligence and self-concept on cerebral hemispherical preference.

17. There is no significant interaction effect of intelligence and self-concept on concept attainment.

18. There is no significant interaction effect of schools affiliated to H.B.S.E. and C.B.S.E., locality and sex on cerebral hemispherical preference.
19. There is no significant interaction effect of schools affiliated to H.B.S.E. and C.B.S.E., locality and sex on concept attainment.

6.10 METHODOLOGY

The methodology followed in carrying out the present study is described below:

6.10.1 SAMPLE

The sample comprised 683 students (329 boys and 354 girls), of these 435 students (204 boys and 231 girls) belongs to private schools while 248 students (125 boys and 123 girls) belong to government schools. The sample was collected from 27 senior secondary schools. The sample was selected from Sonepat district, Haryana only. The sample distribution in detail is given below:
6.10.2 VARIABLES

The variables to be measured in the present study are learning styles (includes: thinking styles), concept-attainment, self-concept, and intelligence along with sex, types of schools, locality.

6.10.3 TOOLS

The measuring tools as mentioned below were used for measuring the variables under the present study:

1. Style of Learning And Thinking (SOLAT) constructed by D. Venkatraman.


3. Concept Attainment Test (LPG) in Economics constructed by Investigator.


6.11 PROCEDURE OF DATA COLLECTION

The researcher visited the schools, and described the aim of the visit. After getting the permission from head/principal of the school, researcher collected the data by administering the tools described before.
6.12 STATISTICAL TECHNIQUES USED

The obtained data were analyzed by using the following statistical techniques:

1. Point Bi-serial correlation was computed to find correlation among cerebral hemispherical preference and Concept attainment, cerebral hemispherical preference and Intelligence, and cerebral hemispherical preference and Self-concept.

2. Chi-square was computed to find the relation between sex and cerebral hemispherical preference, Locality and cerebral hemispherical preference, School types and cerebral hemispherical preference, Intelligence and cerebral hemispherical preference, Self-concept and cerebral hemispherical preference, Concept-attainment and cerebral hemispherical preference.

3. One way ANOVA was computed to find the interaction of cerebral hemispherical preference with intelligence & self-concept.

4. Pearson correlation was computed to find the inter-correlation among cerebral hemispherical preference, concept-attainment, self-concept, and intelligence.

5. Two way ANOVA was computed to find the interaction of:
   
i. Intelligence and self-concept on cerebral hemispherical preference,
ii. Intelligence and self-concept on concept attainment,

iii. C.B.S.E. and H.B.S.E. affiliated schools, locality, and sex, on cerebral hemispherical preference.

iv. C.B.S.E. and H.B.S.E. affiliated schools, locality, and sex, on concept attainment.

6.13 MAJOR FINDINGS

On the basis of different interpretations of tables, following results are the found:

1. There is no significant relationship in cerebral hemispherical preference and concept attainment. It means cerebral hemispherical preference does not effect the concept attainment.

2. There is no significant relationship in cerebral hemispherical preference and intelligence. It means cerebral hemispherical preference does not determine the intelligence.

3. There is significant relationship in cerebral hemispherical preference and self-concept. It means that the group of right cerebral hemispherical preference is significantly better than the group of left cerebral hemispherical preference in self-concept.

4. There is no significant relationship of cerebral hemispherical preference with sex, locality, school type, intelligence and self-concept. It can be stated that all the six variables (sex, locality school type, intelligence and self-concept) do not affect the cerebral hemispherical preference.
5. The main effect of intelligence on cerebral hemispherical preference is found insignificant. So it can be stated that intelligence does not related with cerebral hemispherical preference of senior secondary school students.

6. The main effects of intelligence (students of HBSE and CBSE affiliated schools, students of government and privately managed schools, rural and urban students, male and female students) are found insignificant. So it can be stated that intelligence does not related with cerebral hemispherical preference among different variables of senior secondary school students.

7. The main effect of self-concept on cerebral hemispherical preference is found insignificant. In this regard, it can be stated that self-concept does not related with cerebral hemispherical preference of senior secondary school students.

8. The main effects of self-concept (students of HBSE and CBSE affiliated schools, students of government and privately managed schools, rural and urban students, male and female students) are found insignificant. So it can be stated that self-concept does not related with cerebral hemispherical preference among different variables of senior secondary school students.

9. Inter-correlations among cerebral hemispherical preference, concept attainment, self-concept and intelligence were calculated to find the relationships among these variables. Correlations between concept attainment—self concept, concept
attainment—intelligence, and self concept—intelligence are found significant.

10. Cerebral hemispherical preference of senior secondary school students is not affected by their intelligence, self concept and both in joint form.

11. Concept attainment is definitely effected mainly by intelligence and self-concept. However, variables in combined form do not produce any significant effect on concept attainment.

12. The main as well as interaction effect of cerebral hemispherical preference of senior secondary school students is not significant with Locality (B), Sex (C), Affiliated Board (A) X Sex (C), Locality (B) X Sex (C), and Affiliated Board (A) X Locality (B) X Sex(C); however cerebral hemispherical preference is significantly affected by affiliation by the school by different bards.

6.14 EDUCATIONAL IMPLICATIONS

The findings of the present study have the following implications:

For Teachers

The results will be helpful:

1. in selecting the appropriate instruction for better outcomes of teaching-learning process.
2. in achieving teaching-learning objectives by improving educational practices with the help of individualized learning styles.

3. in providing knowledge of individualized learning and thinking styles helpful to be flexible in teaching.

4. to develop the learning climate for best adjustment of learners.

5. to identify major factors responsible for less or high attainment of students.

6. by providing knowledge of impact of self-concept and intelligence on learning styles responsible to enhance the self-concept for better and fruitful attainment.

7. in planning, conducting and evaluating teaching learning process according to different learning styles in a classroom.

For Heads of school
The results will be helpful:
1. in arrangement of available resources to the maximum use according to need of learners.

2. in the identification of learning styles and teaching styles which will be useful for the settlement of periods.

3. to create the learning environment for the fruitful result of the school.
For Teacher Training Institutes

The results will be helpful:

1. to train the prospective secondary teachers according to different learning styles of the students.

2. in the development of the quality of teaching during in-service teaching programme by adopting the different strategies with different learning styles.

3. for the inclusion of different strategies including different learning styles and its relation with attainment helps to attain objectives of teacher-training courses.

For Educational Planners

The results will be helpful:

1. for preparing curriculum according to learners' learning styles.

2. for selection of the activities to be included in curriculum.

6.15 SUGGESTIONS FOR FURTHER STUDY

The present study brings to light a good number of new areas to be studied by the future researchers. The area and variables which were not covered by this study may be put to test to enlighten the factors associated with the achievement/attainment in different subjects. The findings of the present study have some implications for the researchers who want to work in this area. So, the researcher may think of the following areas to study in detail:
1. The present study was confined to the senior secondary schools from Sonipat district of Haryana state only. Similar studies may be conducted in other cities of the country.

2. The present study was limited to the students of Economics studying at eleventh standard. Similar studies may be conducted on the students of other standards for different subjects in schools or in colleges. Teacher-trainees may also be included for the further study.

3. The present study may be extended to graduate and postgraduate students in professional courses i.e. Law, Engineering, and Medicine etc.

4. Study may be conducted by including additional variables related to social, economical and cultural aspects.

5. This kind of study may be conducted in the field of special education to enrich their learning level.

6. Comparative studies may also be conducted for finding the factors responsible for low level of learning of the students at different levels as well as in different subjects.