



Cognitive Style And Academic Achievement of Higher Secondary Students

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ABSTRACT

Cognitive style is described as a personality dimension which influences attitudes, values and social interaction. Mikeney and Keen (1974) and Botkin (1974) categorized the cognitive style into two namely systematic style and intuitive style. Survey method was adopted for this study. The objective of the study is to find the predominance of cognitive style prevailing among Standard XI students. The tool used was Cognitive-Style Inventory developed by Praveen Kumar Jha (2001). A sample comprised of 221 students who were studying Standard XI in Science and Arts groups in Tirunelveli District. Random sampling technique was adopted. 60.6% of standard XI students have systematic cognitive style and 39.4 % of intuitive style. Systematic style of cognitive style is predominant than intuitive style so teachers should follow logical, step by step sequential approach to thinking, learning, problem solving and decision making which helps to attain more academic scores.

KEYWORDS

Cognitive style, achievement, systematic style, Intuitive style

Cognitive style is described as a personality dimension which influences attitudes, values and social interaction. Herman Witkin (1950) introduced the term 'cognitive style' to describe the concept that individuals consistently exhibit stylistic preferences for the ways in which they organize stimuli and construct meanings for themselves out of their experiences and further suggested that these styles include variables within single dichotomy like global-holistic versus focus-detailed, field dependent versus field independent. It is a fact that these two styles have gained lots of popularity in terms of perceptual processes of persons. Paivio (1971) indicated that cognitive style assesses whether an individual tends to think in verbal terms, using sequential processing of information, or in visual terms, using parallel processing. Cornett (1983) described cognitive style as a predictable pattern of behaviour within a range of individual variability. Messick (1984) indicated that cognitive style deals with the manner in which people prefer to make sense out of their world by collecting, analyzing, evaluating, and interpreting data. Srinivasa Kumar (2011) defined that cognitive style has to be considered as a wholistic process of cognition that begins with the perception, and mediated by information processing and the resultant retrieval; it varies from person to person and it is affected by various personality factors, such as, previous information, heredity and environment, interest, thinking, attitude, value system, intelligence, creativity, social and economic status and so on.

All the students are unique in their inborn skills and innate approaches. The uniqueness varies according to the cognitive styles. The achievement of students mainly depends on cognitive style. Mikeney and Keen (1974) and Botkin (1974) categorized the cognitive style into two namely systematic style and intuitive style.

An individual who typically operates with a *systematic style* uses a well defined step by step approach when solving a problem, look for an overall method or pragmatic approach, and then makes an overall plan for solving the problem. The individual with intuitive *style* uses an unpredictable ordering of analytical steps when solving a problem relies experience pattern characterized areas.

Objectives

1. To find the predominance of cognitive style prevailing among Standard XI students.
2. To find out the significant difference in academic achievement of Standard XI students with regard to two types of cognitive styles - systematic and intuitive.
3. To find the association between cognitive style and academic achievement of Standard XI students.

Hypotheses

1. There is no significant difference in cognitive styles of Standard XI students with regard to select background variables.
2. There is no significant difference in academic achievement of Standard XI students with regard to cognitive styles.

Methodology

a) Method:

Survey method was adopted for this study.

b) Tool used:

The tool used in this study was Cognitive-Style Inventory developed by Praveen Kumar Jha (2001). The CSI consists of 40 statements, half of which pertain to the systematic style and half to the intuitive style. Respondents evaluate each statement according to the degree to which they agree with it. Subsequently, the respondents transfer their responses to the scoring sheet, which yields a systematic score and an intuitive score. These scores are then transferred to the interpretation sheet, which allows them to determine to what degree they specialize in systematic and intuitive styles.

c) Sample:

A sample comprised of 221 students who were studying Standard XI in Science and Arts groups in Tirunelveli District. Random sampling technique was adopted. Sample included the students of both gender.

Data Analysis

Arithmetic mean, Standard deviation and t-test for large samples were the statistical techniques employed in this study.

Table 1: Predominance of Cognitive Style prevailing on Standard XI Students

Variable	Type of cognitive style				
	Systematic style		Intuitive style		
	N	%	N	%	
Gender	Male	84	69.4	37	30.6
	Female	50	50.0	50	50.0
Parent's Literacy	literate	37	54.4	31	45.6
	illiterate	97	63.4	56	36.6
Optional subject	Science	66	74.2	23	25.8
	Arts	68	51.5	64	48.5
Standard XI Students	134	60.6	87	39.4	

The above table shows that more than three – fifth of the respondents have systematic type of cognitive style.

Table 2: Level of Academic Achievement of Standard XI students with different cognitive styles

Type of cognitive style	Variables	Level of Academic Achievement					
		Low		moderate		high	
		No	%	No	%	No	%
Systematic style	XI Std students	47	35.1	48	35.8	39	29.1
Intuitive style		27	31.0	35	40.6	25	28.4

The above table shows that Intuitive style students of Standard XI students have more in academic achievement than systematic style.

Table 3: Association between cognitive styles and Achievement of Standard XI students with different cognitive styles

Cognitive Style	Style Low	Achievement				C ² Value	'p' value	Re-Result
		Mod-erate	High	Total				
Systematic	O	48	49	39	136	0.59	0.77	NS
	E	45.9	51.4	38.7	136			
Intuitive	O	28	36	25	89	0.59	0.77	NS
	E	30.1	33.6	25.3	89			

The above table shows that there is no significant association between cognitive styles (systematic and intuitive) and Achievement of Standard XI students.

Findings

- 60.6% of standard XI students have systematic cognitive style and 39.4 % of intuitive style.
- Male students have more systematic style whereas female students have equal in systematic style and intuitive style.
- Students of literate parents have more systematic style and illiterate parents have more intuitive style.
- Science group students have more in systematic than intuitive style whereas Vocational group have equal in systematic style and intuitive style.
- Intuitive style students of Standard XI students have more in academic achievement than systematic style
- Intuitive style male students have more level of moderate level academic achievement than female.
- Students of literate parents have more level of academic achievement than illiterate parents in regard to both styles.
- Students of science group have more in moderate level of academic achievement with regard to systematic style and intuitive style.
- There is no significant association between cognitive styles (systematic and intuitive) and Achievement of Standard XI students

Recommendations

- Systematic style of cognitive style is predominant than intuitive style so teachers should follow logical, step by step sequential approach to thinking, learning, problem

solving and decision making which helps to attain more academic scores.

- Science students have more systematic style hence these students may motivate to join in professional courses.
- Male students have more systematic style so they may encourage in handling technical courses.
- Students of literate parents have more level of academic achievement than illiterate parents in both systematic and intuitive style. Hence the teachers may stress the role and importance of cognitive style in their academic achievement to the students of illiterate parents.
- Students of science group have more in academic achievement so awareness programmes may organized for arts students.

Conclusion

From the findings it is concluded that systematic style of cognitive style is predominant than intuitive style. Intuitive style students of Standard XI students have more in academic achievement than systematic style. Moderate level of academic achievement was seen in both systematic and intuitive style. Teachers may stress the role of cognitive style in their activities in life. Adventurous activities may be initiated in the school curriculum. Provide real life experience patterns to the learner and develop the ability of self assurance and self sufficiency among students. Extra activities may give to the students to develop the cognitive style.

References

- Botkin, J.W. (1974). *An intuitive computer system: A cognitive approach to the management learning process*. Unpublished doctoral dissertation, Harvard University, Cambridge.
- Keen, J.L. (1974). *How managers' minds work*. Harvard Business Review, pp. 79-88.
- Cornett, C. E. (1983) *What you should know about teaching and learning styles* Bloomington, IN: Phi Delta Kappa Educational Foundation.
- Messick, S. (1984). *The nature of Cognitive Styles: problems and promise in educational practice*. Educational Psychologist, 19, 59-74.
- Paivio, A. (1971). *Imagery and Verbal Processes*. New York: Holt, Rinehart.
- Praveen Kumar Jha. (2001). *The Cognitive Styles Inventory*. Agra, Rakhi Prakashan.
- Srinivas Kumar, D. (2011). *Introduction to Cognitive Styles and Learning Styles*. Kuppam: Prasaranga, Publications Bureau, Dravidian University.
- Witkin, Herman A. "Individual Differences in Case of Perception of Embedded Figures." *Journal of Personality* 19 (1950):1-15.