



Cognitive Style and Problem-solving Ability among Secondary School Students at Trichy District

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Abstract:

The key goal of the present study aims to find that there is a positive correlation between Cognitive style and Problem Solving ability among school students. The study was conducted through survey method. 200 samples were utilized to collect the information in various schools at Trichy District. To find the significant relationship Cognitive Style Inventory Jha (1983) and Problem Solving ability Questionnaire by Dubey (2008) was adapted. The Major finding shows that there is positive correlation between the variables. This implies that the schools may provide facilities to handle the problem by their own way.

Introduction

Problems are an inseparable part of human life. One solves a problem in a particular way by which he satisfies himself while solving the problem. In this way, he develops a style for solving the problem. Thus, each person has a unique style of his own. Cognition is the acquisition of knowledge which involves a series of mental skills. Neisser (1967) defines cognition as the process by which the sensory input is transformed, reduced and elaborated, stored, recovered and used. Haber (1969) identified cognition as synonymous to human information processing. Djoudi (1950) and Mukerjee (1993) stressed the need of using cognitive strategies to attain mastery of learning. These are the potentially conscious activities functions. It is used while learning to promote better learning and retention of learning for longer periods.

The cognitive style has been viewed from different angles. According to Harvey (1963) cognitive style is the way an individual filters and processes stimuli so that the environment takes on psychological meaning. Goldstein and Blackman (1978) define cognitive style as a hypothetical construct that has been developed to explain the process of mediation between stimuli and responses. Here, the term cognitive style refers to how individuals conceptually organize the environment.

Cognitive style has been developed so that relationship between Stimulus and Response can be understood. By using it an individual can manipulate and organize his environment in certain ways. Cognitive style refers to the way an individual responds to his stimulus.

Objectives

- To study the impact of cognitive styles on the problem-solving ability of Secondary School Students.
- To study the difference between scores of the problem-solving ability of integrated and split-style male Secondary School Students.
- To study the difference between scores of the problem-solving ability of integrated and split style of female Secondary School Students.
- To study the effect of the subject stream on the problem-solving ability of Secondary School Students.

Hypotheses

- ❖ There is no significant difference between scores of problem-solving abilities of integrated and split style Secondary School Students.
- ❖ There is no significant difference between scores of problem-solving ability of integrated and split style male Secondary School Students.
- ❖ There is no significant difference between scores of problem-solving abilities of integrated and split style of female Secondary School Students.
- ❖ There is no significant difference between scores of problem-solving abilities of Rural and Urban Secondary School Students.

Sample

The sample consists of 200 male and female Secondary School Students from various Schools located in Trichy District.

Tools

- **Cognitive Style Inventory by Jha (1983)**
- **Problem Solving Ability by Dubey (2008).**

Analysis and Discussion

To test the hypotheses data was collected accordingly and scoring was done as per the procedure stated in the manuals. According to the scores obtained by the cognitive style inventory all the subjects were categorized into five types of cognitive styles as systematic, intuitive, undifferentiated, integrated and split. Since a less member of

students falls in systematic, intuitive, and undifferentiated style, they were not taken for further studies. Statistical analysis was employed on the scores obtained from subject of integrated and split type of cognitive style. To find out the impact of cognitive style on problem solving ability 't' test was employed and findings are as follows.

Table No. 1

Table showing mean, standard deviation and 't' value of problem-solving ability of integrated & split style Secondary School Students.

S.No.	Groups	N	M	SD	t – value
1.	Integrated Style	70	12.8	4.00	1.53
2.	Split style	109	11.19	3.62	
df = 177, P > .05, Not significant					

Table no. 1 shows that the calculated 't' value for problem solving ability scores of integrated and split style Secondary School Students is less than table value at .05 level of significance. It indicates that there is no significant difference between the problem-solving ability of integrated and split style Secondary School Students. The shown difference may be due to some error.

Table No. 2

Table showing mean, standard deviation and 't' value of problem-solving ability of integrated & split style male Secondary School Students.

S.No	Groups	N	M	SD	t – value
1.	Integrated Style	34	11.76	4.29	0.133
2.	Split style	54	11.61	3.89	
. df= 86,		P > .05,		Not significant	

It is revealed from table no. 2 that there is no significant difference between the problem-solving ability scores of integrated and split style male undergraduates since the obtained t-value is less than the table value at 0.05 level of significance, the difference between mean may be due to some error.

Table No. 3

Table showing mean, standard deviation and t-value of problem-solving ability of integrated & split style female Secondary School Students.

S.No	Groups	N	M	SD	t – value
1.	Integrated Style	36	12.38	3.67	2.14
2.	Split style	55	10.78	3.28	
df= 89, Significant					P < .05,

Table no. 3 indicates that obtained 't' value is 2.14 which is more than the table value at .05 level of significance, hence the value is significant. It means female Secondary School Students of integrated style differ in their problem-solving ability to that female Secondary School Students having split style. Since the mean value of female Secondary School Students of integrated style is greater than split style Secondary School Students hence it can be concluded that integrated style female Secondary School Students are better problem solver. So, it can be inferred that in female Secondary School Students cognitive style plays a significant role on their problem-solving ability. Moreover, a female with an integrated style is a good problem identifier and a good problem solver. Imagination and its critical analysis are very important in solving any problem. The nature of females of integrated style is very practical and rational. Hence, there exists a significant difference between the problem-solving ability of integrated and split style female Secondary School Students.

Table No. 4

Table showing mean, standard deviation and 't' value of problem-solving ability of Rural and Urban Secondary School Students.

	Locality	N	M	SD	t – value
	Rural	57	14.4	4.03	8.07
	Urban	122	10.2	2.83	

df= 177	P < .01,
Significant	

Table no. 4 shows that calculated 't' value is greater than the table value at .01 level of significance (df = 177). The mean score indicates the difference in problem solving ability of Rural and Urban undergraduates. Rural are better problem solver than their counterpart Urban Secondary School Students. The Secondary School Students from Rural are well versed with mathematical operations, formulae, calculations logical reasoning etc.

Conclusion

It can be concluded from the study that cognitive style has no impact on problem solving ability of Secondary School Students. Integrated and split style Secondary School Students both are having average and above average problem-solving ability. In case of male Secondary School Students, cognitive style also does not play any significant role in - Problem solving ability. But in female Secondary School Students it plays a significant role upon problem solving ability, significant difference was found in the problem-solving ability of integrated and split style female Secondary School Students. It was found that female subjects of integrated type of cognitive style were found to have good problem-solving ability. Maximum of female subjects come in the range between an average and a high ability to solve the problem. The persons with an integrated style are able to change their actions quickly and with an ease relating to the situation. Generally, girls are more sincere, disciplined and punctual towards their work as compared to the boys who are more rigid and casual. Moreover, girls are known to take a harmonious decision suiting to the current need. A significant difference was also accounted in the problem-solving ability of Rural and Urban Secondary School Students. Locality of study has a major role in determining the degree of problem-solving ability. The Rural is found to be good in problem solving as compared to their counterpart Urban Secondary School Students. The reason behind this may be because School facilitates logical reasoning, imagination of problem, abstract thinking at reflective level etc.

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