Year-7 Volume: II, July-September, 2025 Issue-27 ISSN: 2582-1296 (Online)
The Asian Thinker
A Quarterly Bilingual Peer-Reviewed Journal for Social Sciences and Humanities
Website: www.theasianthinker.com **Email**: asianthinkerjournal@gmail.com

1. A study of cognitive style among college students

Dr. Kalpnath Saroj
Assistant Professor, Department of Education, Bundelkhand University Jhansi (UP)
Email- ***kalpnath86@gmail.com***
Shanvi Antal
M. Ed. Student, Bhartiya College of Education Udhampur (J&K)

Abstract

Cognitive style is a habitual individual preference in perceiving and processing information which can influence learning; problem solving and decision making are ways to provide evidence-based practices for improving school learning. The present study is an attempt to know the cognitive style between gender, locality, family and studying in the various types of college students of Udhampur district. The present study has been undertaken through the descriptive method of research. The sampling technique for the study was random sampling method. The sample was drawn from graduating students studying in the selected colleges of Udhampur city. A sample of 200 students was taken which included 100 boys and 100 girls. The investigator visited the selected colleges personally for the collection of data. For this study, it was decided to make the use of technique of 'Analysis of Variance' to analyze the collected data. Finding of the study revealed that there was a significant difference in cognitive style of male and female students. Cognitive styles differed in boys and girls. There was significant difference in cognitive style of college students belonging to different areas. The interaction between sex and area was significant. There was a significant difference in cognitive style of government and private College students. Cognitive styles differed in government and private college students. There was a significant difference in cognitive style of joint and nuclear family college students. It means that cognitive style was influenced by different levels of nature of college and type of family in different combinations.

Keywords: Cognitive Style, Gender, locality and Information processing.

INTRODUCTION

Education is an effective catalyst instrument which is transforming the society. According to NEP (2020, p. 4) it is developing the fundamental capacities and higher order capacities of learners such as critical and problem-solving abilities. This healthy change may occur in terms of one's mental, social, spiritual and economic well-being. It inculcates the realization of a right and wrong in the individuals. Within the content of education, the cognitive style has the potential to shape students' intellectual, emotional well-being and suitability to particular kinds of teaching and learning. The learning is an example of cognition and cognition is a term referred to the mental processes involved in gaining knowledge and comprehension.

Cognitive styles determine preferences for information processing where learners are receiving and organizing the information. Noroozi (2003) augmented that the way of reactions to the environment tis an organization and processing. It indicates the level of cognitive factors among learners and their thinking style is affected by cognitive abilities. Cornett (1983) explained the cognitive style as the individual variability which is a predictable pattern of behavior. Further Kumar (2011) stated that cognitive style is a holistic process of cognition which starts with the perception and mediated by information processing and it differs from individual to individual and influenced by learner's psychological and social factors. Coop and Sigel (1971) highlighted that cognitive style is a mode of behavior and not a mediating process. Cognitive styles (e.g., Kirton, 1976) have been shown to be good predictors of creativity above individual characteristics (e.g., Harrisonet al., 2002). Therefore, to add up to a valid explanation of idea generation, we argue that the cognitive processes underlying idea generation must be taken into account. Cognitive styles are important because they are ways of learning that are appropriate for each individual. Individual differences should be valued because they are unique characteristics of individuals and personalities. In teaching learning process, a teacher uses the child-centered approaches in dealing with one single task because some students react quickly while others are slow, although both groups of knowledge have equal for a particular learning work. In this view Cohen (1969) and Watkins (2001) stated that members of a family and members of a social group have similar individual cognitive styles.

This process of learning about right and wrong is a lifelong process passing through formal and informal modes. It leads the society towards cultural enrichment and self-competencies for a successful living. Cognitive style is a person's habitual, prevalent or preferred way of thinking (Riding, 1997). Thinking may involve perceiving information, processing information, and applying information. The term cognitive style is used to refer to a person's habitual way of learning or teaching (Sternberg, 1997). It is a style as the terms of decision-making style, problem-solving style, learning style, mind style, perceptual style, and conceptual tempo reported by (Zhang and Sternberg, 2005).Itisas a "predicateble pattern of behaviour within a range of individual varibility" (Cornett, 1983). Cognitive style differs from intellectual ability. Cognitive learning encourages students to take hands-on approach to learning. This allows them to explore the material and develop deeper understanding.

The cognitive learning approach teaches students the skills they need to learn effectively. Developing cognitive skills allows students to build upon previous knowledge and ideas. This teaches students to make connections and apply new concepts to what they already know. Giving students the chance to actively engage in learning makes it exciting fun. This helps students develop a lifelong love for learning outside the classroom.

Basu (2010) conducted a study on the cognitive development of prospective teachers at elementary and secondary level. Results showed that majority of the prospective elementary and secondary teachers function at the formal operational level of cognitive development of the prospective elementary and secondary school teachers. Also, no significant gender differences came to light when the levels of cognitive development of male and female prospective elementary and secondary school teachers were compared. Manjula, Saraswathi and Prakash (2009) revealed on cognitive profile of children with reading and writing difficulties and found that children with reading and writing difficulties were found to have low scores in cognitive and comprehension abilities when compared to normal children. This is for the first time such a study is undertaken in Udhampur district. Considering this fact in mind and to know more details about cognitive style among college students, the present research study has been undertaken by the researcher in order to understand this phenomenon.

SIGNIFICANCE OF THE STUDY

Cognitive style plays an important role in every individual's life. Every individual has a different way of perception. Thought process, learning and thinking, are known as cognitive style. However, the present research is helpful for teachers, school administrators, institutions and students. The present study is conducted to understand the cognitive styles among college students of Udhampur. It is an easy task to see how a student's cognitive style may influence his/her way of learning. It is an important key concept in the area of psychology, education and management. Coop and Sigel (1971) equated cognitive style with modes of behavior rather than a mediating process. They used the term cognitive style to denote consistencies in individual modes of functioning in a variety of behavioral situations. It engages students in the learning processes, teaching them to use their brains more effectively to make connections when learning new things. Cognitive learning encourages students to take a hands-on approach to learning. This allows them to explore the material and develop deeper understanding. Tomer (2017) argumented that learning formally connects the learner's cognitive style.The cognitive learning approach teaches students the skills they need to learn effectively. Behera (2022) find out that the cognitive style was of the same level among boys and girls. Thus, Social cognition involves the process through which we notice, interpret, remember and later use information about the social world. This helps students build transferable problem- solving and study skills that they can apply in any subject. Developing cognitive skills allows students to build upon previous knowledge and ideas. This teaches students to make connections and apply new concepts to what they already know. With a deeper understanding of topics and stronger learning skills, students can approach schoolwork with enthusiasm and confidence. This helps students to develop a lifelong love for learning outside of the classroom. This is for the first time such a study is undertaken in this part of the UT. Considering this fact in mind that this area is virgin as no detailed research study is reported in this area about cognitive style. In order to understand this phenomenon this study was undertaken with given objectives.

OBJECTIVES OF THE STUDY

1. To study the differences in cognitive style of the college students sex wise.
2. To understand the differences in cognitive style of the college students locality wise.
3. To find out the joint influence of sex and locality of college students on cognitive style.
4. To study the differences in cognitive style of the type of college students wise.
5. To understand the differences in cognitive style of the type of family college students wise.
6. To find out the joint influence of type of college and type of family of college students on cognitive style.

HYPOTHESES OF THE STUDY

H_{01}. There will be no significant difference in cognitive style between male and female college students.

H_{02}. There will be no significant difference in cognitive style between rural and urban college students.

H_{03}. There will be no significant difference in cognitive styles under the joint influence of sex and area.

H_{04}. There will be no significant difference in cognitive style between government and private college students.

H_{05}. There will be no significant difference in cognitive style between joint and nuclear family college students.

H_{06}. There will be no significant difference in cognitive styles under the joint influence of type of college and type of family.

METHODOLOGY AND PROCEDURE

The methodology used in the study was descriptive research method in which survey technique was employed. The population of study comprised of college students of Udhampur town. The sampling technique used for the study was simple random which comes under the probability sampling. The sample of the study includes 200 college students of Udhampur. The tool used for the study was Cognitive Style Inventory constructed and standardized by Jha (2001). The collected data were analyzed using the online statistical soft ware to find out the t-value and F-test accordingly derived valid conclusion.

ANALYSIS AND INTERPRETATION OF DATA

Analysis and interpretation of data refers to the part of a study, which is associated with the drawing of inferences from collected facts. This section is the soul of the study. It is an important and exciting step in the process of research. In all research studies, analysis follows data collection work. Therefore, this section deals with the analysis and interpretation of the data collected by administering the one set of questionnaires to 3 selected colleges of Udhampur city. In the present study, 100 boys and 100 girls were randomly selected as samples and data have been collected to find out the difference between mean scores of the systematic style and intuitive style of boys and girls of Government and Private colleges of Udhampur.

Table 1: Mean, SD & t-value of College Students with respect to Gender

Gender	Number	Mean	S.D.	t-Value	Level of Significance
Male	100	133.45	22.77	2.34	0.05

Female	100	140.06	16.69		

Table (1) shows the mean scores obtained for the male and female college students regarding their cognitive style as 133.45 and 140.06 respectively. The standard deviation scores obtained for male and female college students are 22.77 and 16.69. The t value obtained was 2.34, which is significant at 0.05 level. Accordingly, the first hypothesis stated as there is no significant difference in the cognitive style among the college students with respect to their gender was rejected which implies female students were greater in cognitive style rather than male students. Saxena and Jain (2014) find out that female integrated style was higher than problem solving ability.

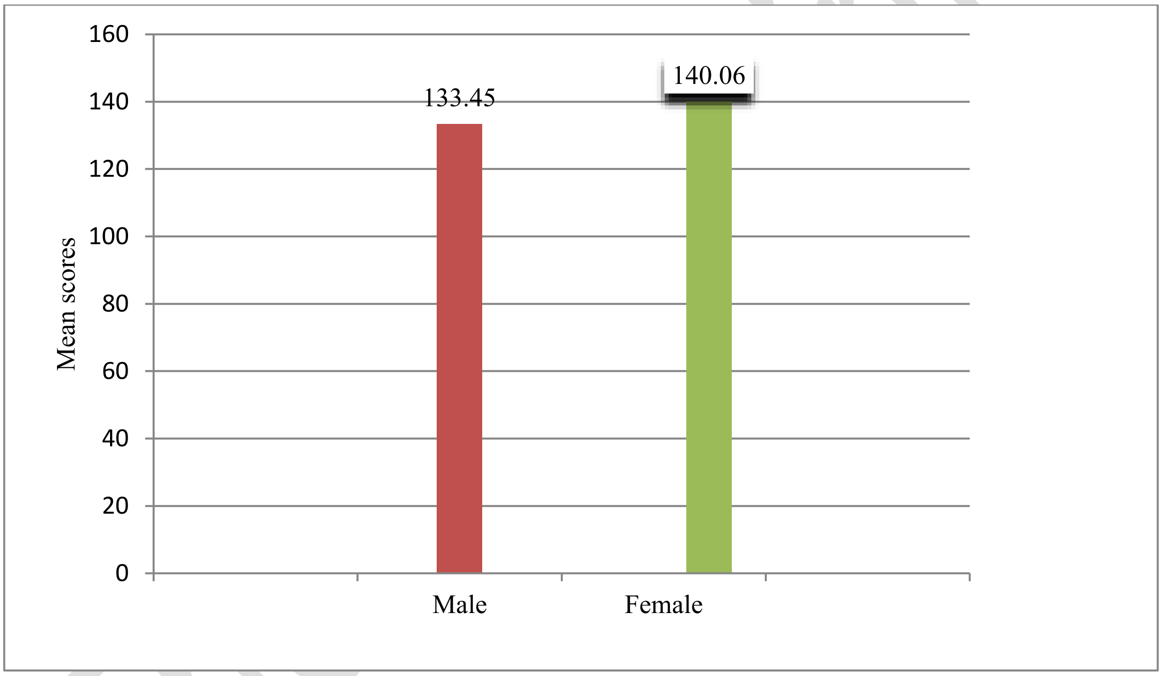

Figure (1) showing Mean values of Cognitive Style among Male and Female College Students

Table 2: Mean, SD & t-value of College Students with Respect to Locality

Locality	Number	Mean	S.D.	t- Value	Level of Significance
Urban	140	138.81	19.07	2.45	0.05
Rural	60	130.85	21.87		

Table (2) shows the mean scores obtained for the urban and rural college students regarding their cognitive style as 138.81 and 130.85 respectively. The standard deviation scores obtained for urban and rural college students was 19.98 and 21.87 respectively. The t value obtained was

2.45, which is significant at 0.05 level. The second null hypothesis stated that there is no significant difference in the cognitive style among the college students with respect to their locality was rejected which implies both of them exhibited difference but urban students were higher in cognitive style rather than rural college students.

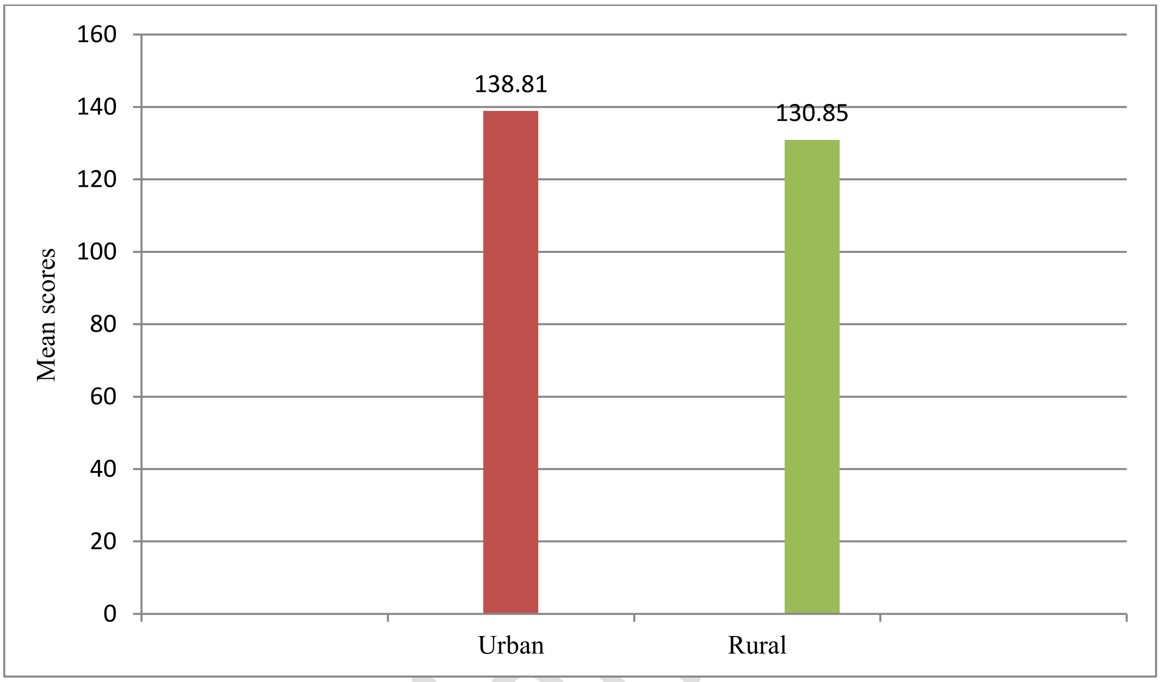

Figure (2) showing Mean values of Cognitive Style among Urban and Rural College Students

Table 3: The summary of 2*2 ANOVA on Cognitive Style (Sex& Locality)

Source of Variance	df	Sum of squares	MS\ SS	F	Level of Significance
Sex* Locality	3	4860	1619.85	4.067	Significant
Within	396	157659	398.13		0.05
Total	396	162519			

Table (3) indicates the value of F ratio thus obtained was 4.067 against 4.11 at 0.05 level against df (degree of freedom) of 3& 396 that is significant. Accordingly, the third hypothesis stated that there was no significant difference in cognitive style of college students under the influence of sex and locality. Hence, the null hypothesis was rejected. This further implies that the sex and locality of students were significantly differed in cognitive style.

Table 4: Mean, SD & t-value of College Students with Respect to type of college

Type of College	Number	Mean	S.D.	t-Value	Level of Significance
Government	119	133.17	20.65	3.35	0.05
Private	81	142.35	17.75		

Table (4) shows the mean scores obtained for the government and private college students regarding their cognitive style are 133.17 and 142.35 respectively. The standard deviation scores obtained for government and private college students are20.65 and 17.75 respectively. The t value obtained was 3.35, which is significant at 0.05 level. The fourth null hypothesis stated as there is no significant difference in the cognitive style among the college students with respect to their type of college was rejected, which implies both of them exhibited difference but private college students were higher in cognitive style rather than government college students.

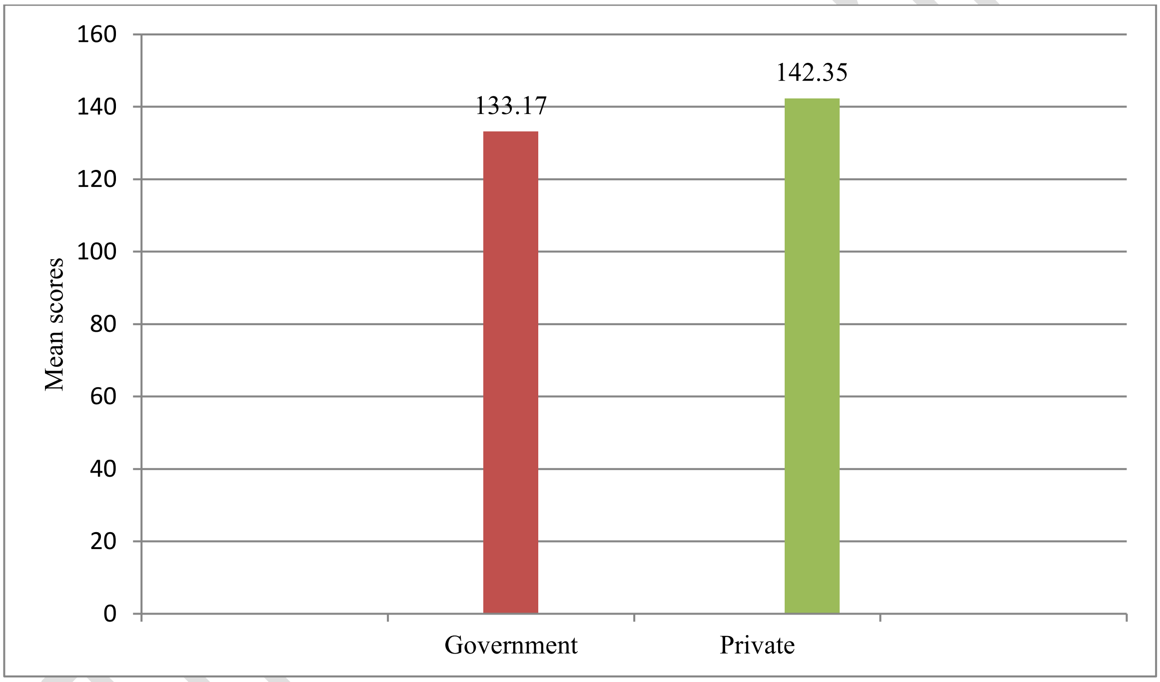

Figure (3) showing Mean values of Cognitive Style among Government and Private College Students

Table 5: Mean, SD & t-value of College Students with Respect to type of family

Type of family	Number	Mean	S.D.	t- Value	Level of significance
Joint	100	133.53	20.583	2.21	0.05
Nuclear	100	139.78	19.377		

Table (5) shows the mean scores obtained for the joint and nuclear family college students regarding their cognitive style are 133.53 and 139.78 respectively. The standard deviation scores obtained for joint and nuclear family college students are19.98 and 21.87 respectively. The t value obtained was 2.21, which is significant at 0.05 level. The fifth null hypothesis stated as there is no significant difference in the cognitive style among the college students with respect to their locality was rejected which implies both of them exhibited difference but nuclear family college students were higher in cognitive style rather than joint college students.

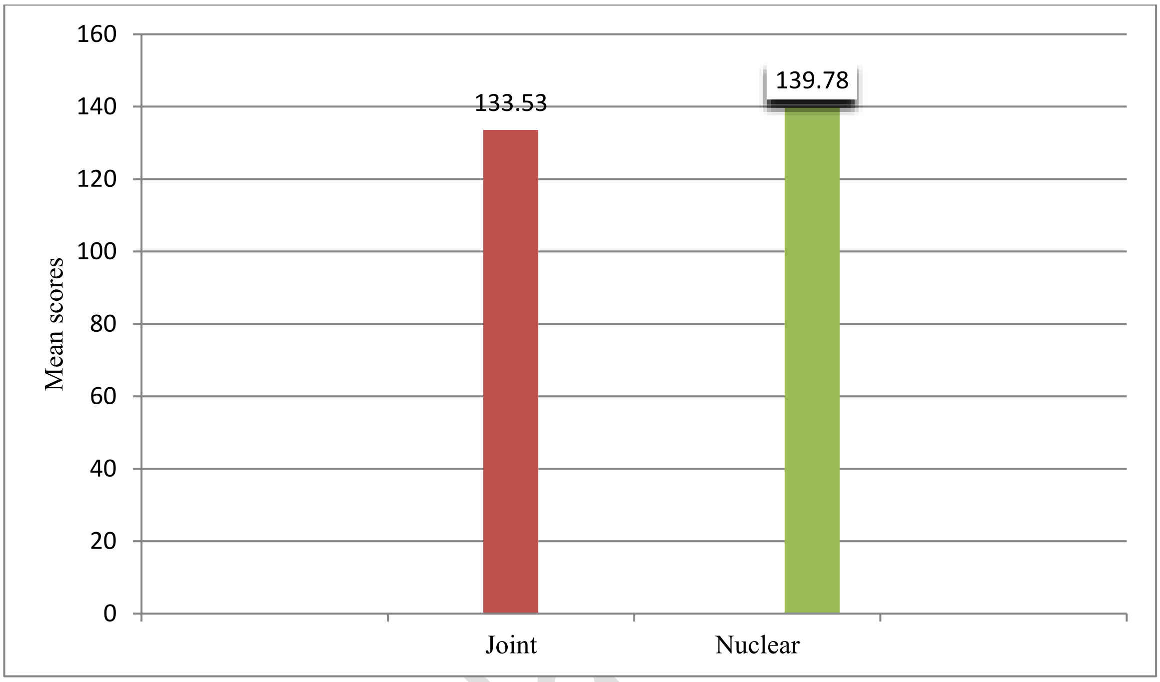

Figure (4) showing Mean values of Cognitive Style among Joint and Nuclear family College Students

Table 6: The summary of 2*2 ANOVA on Cognitive Style (Type of College & Type of family)

Source of Variance	df	Sum of squares	MS\SS	F	Level of significance
Type of College* Type of family	3	6253	2084.47	5.334	Significant
Within	396	153593	390.82		0.05
Total	396	159847			

Table (6) indicates the value of F ratio thus obtained was 5.334 at 0.05 level against df (degree of freedom) of 3& 396 that is significant. The sixth hypothesis stated that there was no significant difference in cognitive style of college students under the influence of type of college and type of family. Hence, the null hypothesis was rejected. This further implies that the

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type of college and type of family students were significantly differed in cognitive style.

Educational Implications and Suggestions

In teaching learning settings, perception and thinking are very important factors for developing learning style. It is necessary to build a learning environment in education institutions. Better learning environment will foster the learning style. It affects the academic performance and attainment of students (Hayes & Allinson, 1996; Messick, 1984) and help in decision making (Kirton, 1994). The present study revealed that learning styles of urban students are better than rural students. This further implies that better learning environment develops better learning styles. For teachers, students and administrators, it is important to build learning environment in the educational institutions for development of learning style. Background of students and teachers needs to be monitored. Special teaching learning sessions for enhancing capabilities of students for better learning style need to be arranged. In order to enhance the learning styles of students irrespective of gender, locality, type of college and type of family. Girls, Rural, Government College and Nuclear family students need to address their uniqueness for critical learning styles. Cognitivestyle enhances the learning out comes of learners (Jie and Qin (2006). Cognitive style helps building a society that equipped with a creative spark, problem solving attitude, critical thinking approach, rationalistic individual, decision making potentialities, sociability, and effective society.

After conducting the study, the investigator is able to put forth a few suggestions for further studies in related areas. Due to lack of time and resources, this study is conducted in colleges within the territorial boundary of Udhampur district only. This study can also be done for the other districts of J&K. The present study is based on small sample size so it can be replicated with a large sample. It would be helpful in drawing more valid and reliable results. A similar study can be conducted on regular and distance learners also. Aggarwal, and et al. (2019) highlighted his research study that cognitive style diversity indirectly influences team work and implied learning through collective intelligence. The high level of cognitive diversity is reduced and lowers the rate at which the team learns. This study can be replicated on school students as well. This study can be conducted on creative and gifted children in school education. The studies can be conducted on students studying in government, private colleges and universities.

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CONCLUSIONS

The conclusion of the present study has been drawn on the basis of the results obtained. There was a significant difference revealed in cognitive styles on sex and locality. Cognitive styles differed in boys and girls. There was significant difference in cognitive style of college students belonging to different areas. The interaction between sex & area was significant. It further implies that cognitive style was influenced by different levels of sex and locality in different combinations.

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