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A study of the Critical Thinking skills of secondary students in the context of Gender

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ABSTRACT

Critical thinking is vital for academic success and informed decision-making in the modern world. This research paper explores the development, assessment, and challenges of critical thinking skills among high school students. This study highlights the importance of fostering these skills in secondary education by reviewing existing literature and a proposed methodology for assessing critical thinking. The findings suggest that while some students exhibit strong critical thinking abilities, systemic educational barriers and inconsistent teaching practices often hinder their development. Recommendations for curriculum design and teacher training are provided to enhance critical thinking in high schools.

Research was conducted on boys and girls of secondary schools studying in English medium schools in the urban area of Anand and Vadodara district. The CTS SLHP standardised by Professor Hemant Lata Sharma and Priyamvada was administered to 305 boys and 140 girls studying in standard nine. Data were collected, and a t-test was applied to analyse hypotheses regarding gender. Cognitive and affective dispositions in CTS were measured. Significant differences between boys and girls in the CTS were seen in cognitive and affective domains. CTS of girls is higher than that of boys in all components of the cognitive and affective domains.

Keywords: *CTS- SLHP, Cognitive disposition, Affective disposition*

Critical thinking, the ability to analyze, evaluate, and synthesize information to make reasoned judgments, is increasingly recognized as a cornerstone of education. In high schools, where students are preparing for higher education and professional life, critical thinking skills are essential for navigating complex information and solving real-world problems. However, research indicates that many high school students struggle with these skills due to traditional teaching methods prioritizing rote learning over analytical reasoning. This paper examines the state of critical thinking among high school students, identifies factors influencing its development, and proposes strategies for improvement.

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IMPORTANCE OF CRITICAL THINKING SKILLS:

Critical thinking is essential for students' development in school as it equips them with skills to navigate complex challenges, make informed decisions, and grow into independent, capable individuals. Below is a concise explanation of its importance:

1. **Enhances Problem-Solving Skills:** Critical thinking enables students to analyze problems systematically, evaluate evidence, and devise practical solutions. This fosters creativity and adaptability in academic and real-world scenarios.

2. **Promotes Independent Learning:** Students become self-directed by questioning assumptions and evaluating information. They develop the ability to seek knowledge, assess its validity, and apply it meaningfully.

3. **Improves Decision-Making:** Critical thinking helps students weigh options, consider consequences, and make reasoned choices, preparing them for responsible decision-making in personal and professional life.

4. **Fosters Effective Communication:** Analyzing and articulating thoughts logically improves students' ability to express ideas clearly and engage in constructive debates, enhancing collaboration and persuasion skills.

5. **Builds Resilience to Misinformation:** In an era of information overload, critical thinking equips students to discern credible sources, reject biases, and avoid manipulation, fostering informed citizenship.

6. **Encourages Lifelong Learning:** Critical thinking instils curiosity and a growth mindset, motivating students to continuously question, learn, and adapt to new challenges throughout their lives.

7. **Prepares for Future Careers:** Employers value critical thinkers who can analyze data, innovate, and adapt to dynamic workplaces. These skills are crucial in fields like technology, healthcare, and leadership.

By embedding critical thinking in education, schools empower students to excel academically, contribute meaningfully to society, and thrive in an ever-changing world.

Objective of the research:

1. To know and compare the cognitive dispositions' critical thinking skills (CTS) in the context of Gender (Boys and Girls).

2. To know and compare the critical thinking skills (CTS) of the cognitive disposition sub-dimension (Analysis, Inference, Evaluation, Self-regulation) in the context of Gender (Boys and Girls).

3. To know and compare the affective dispositions' critical thinking skills (CTS) in the context of Gender (Boys and Girls).

4. To know and compare the critical thinking skills (CTS) of the affective disposition sub-dimension (Ethics and values, Self-confidence, Inquisitiveness, Open-mindedness) in the context of Gender (Boys and Girls).

Hypothesis of the research:

H01. There will be no significant difference in the mean score of cognitive disposition obtained on critical thinking skills between boys and girls.

H02.There will be no significant difference in the mean score of the cognitive disposition sub-dimension (Analysis, Inference, Evaluation, Self-regulation) obtained regarding critical thinking skills between boys and girls.

H03. There will be no significant difference in the mean score of affective disposition obtained on critical thinking skills between boys and girls.

H04.There will be no significant difference in the mean score of the affective disposition sub-dimension (Ethics and values, Self-confidence, Inquisitiveness, Open-mindedness), obtained regarding critical thinking skills between boys and girls.

Research Design

Quantitative research is a systematic investigation that primarily focuses on numerical data, statistical Analysis, and objective measurements to understand patterns, relationships, and trends. It is widely used in social sciences, business, healthcare, and other fields to test hypotheses and draw conclusions. The study employs a quantitative research design to measure critical thinking skills using the CTS-SLHP. It follows a descriptive survey method, allowing data collection from a defined sample to evaluate their critical thinking abilities.

The Critical Thinking Scale, developed by Professor Hemant Lata Sharma and Priyamvada, is a comprehensive tool designed to assess critical thinking abilities in students aged 14 to 18. This scale comprises 85 items, systematically categorized into two primary dimensions: Cognitive Disposition and Affective Disposition.

Sample Selection

A random stratified sampling method was used to select a sample of 445 participants. The sample included the gender of the students from standard nine English-medium schools who were studying only in English-medium schools of Anand and Vadodara. The data are mentioned in the Tables.

Table 1: Sample of the Critical Thinking Skills

Sr No	**Name of the School**	**STD 9**	
		Boys	**Girls**
1	D.N.High school-Anand	**53**	**32**
2	I.B. Patel English Medium (GIA)-Anand	**47**	**24**
3	The Salvation Army English Medium School, Anand	**47**	**12**
4	Shri J.R. Shah Bright School Kareli Baug Vadodara	**57**	**22**
5	Rosary High School-Vadodara	**56**	**27**
6	Shannen School Nagar Vadodara	**45**	**23**
	Total	**305**	**140**

The researcher decided to acquire a standardised tool for the present research. The CTS-SLHP is a standardized tool designed to assess critical thinking skills. It consists of 85 statements

rated on a 5-point Likert scale, ranging from Strongly Disagree (1) to Strongly Agree (5). The scale has a high reliability coefficient of 0.98, ensuring consistency in measuring critical thinking abilities. Data were collected, and the Hypothesis was analysed through a t-test.

Analysis of Hypotheses:

H01. There will be no significant difference in the mean score of cognitive disposition obtained on critical thinking skills between boys and girls.

Table 2: Significant difference in the cognitive disposition mean score obtained on critical thinking skills for boys and girls

Cognitive disposition on critical thinking skills	**Numbers**	**Mean**	**Standard Deviation**	**t value**	**t table**	**Significance**
Boys	305	120.88	15.66	4.90	1.96(0.05) 2.58(0.01)	Significant at the 0.01 level
Girls	140	128.91	16.21			
TOTAL	445					
	(SED) *(SED)	2.681	Hypothesis 1 is rejected at the degree of freedom 443			
	SED	1.637				
	M1-M2	8.03				
	t value	4.90				

As mentioned in Table 2, the calculated value of t is 4.90. The table values are 1,96 and 2.58, respectively, for 0.05 and 0.01 significance levels. The calculated t value is higher than the table value at the 0.01 significance level. There is a significant difference in the cognitive disposition mean scores obtained on critical thinking skills for boys and girls. The null hypothesis 1 is not accepted. Cognitive disposition on essential thinking skills of girls (128.91) is higher than that of boys (120.88).

H02. There will be no significant difference in the mean score of the cognitive disposition sub-dimension (Analysis, Inference, Evaluation, Self-regulation) obtained regarding critical thinking skills between boys and girls.

Table 3: Significant difference in the mean score of the cognitive disposition sub-dimension (Analysis, Inference, Evaluation, Self-regulation) obtained regarding critical thinking skills between boys and girls.

Cognitive disposition on critical thinking skills	**Gender**	**Numbers**	**Mean**	**Standard Deviation**	**t value**	**t table**	**Significance**
Analysis	Boys	305	20.21	3.23	8.52	1.96(0.05) 2.58(0.01)	Significant at 0.01
	Girls	140	23.11	3.38			
Inference	Boys	305	23.21	3.21	5.96		Significant at 0.01
	Girls	140	25.21	3.32			
Evaluation	Boys	305	28.31	3.11	4.81		Significant at 0.01
	Girls	140	29.91	3.32			
Self-regulation	Boys	305	50.32	6.11	3.43		Significant at 0.01
	Girls	140	52.43	5.98			

As mentioned in Table 3, the calculated value of t for all components of Cognitive dispositions is higher than the table value. Differences are seen in the mean scores of boys and girls in Analysis, Inference, Evaluation, and Self-regulation.

The cognitive disposition of girls (23.11) regarding essential thinking skills, Analysis is higher than that of boys (20.21).

The cognitive disposition of girls (25.21) regarding essential thinking skills and inference is higher than that of boys (23.21).

The cognitive disposition of girls (29.91) regarding essential thinking skills Evaluation is higher than that of boys (28.31).

The cognitive disposition of girls (52.43) regarding essential thinking skills, Self-regulation, is higher than that of boys (50.32).

H03. To know and compare the affective dispositions' critical thinking skills (CTS) in the context of Gender (Boys and Girls).

Table 4: Significant difference in the affective disposition mean score obtained on critical thinking skills for boys and girls

Affective disposition on critical thinking skills	**Numbers**	**Mean**	**Standard Deviation**	**t value**	**t table**	**Significance**
Boys	305	169.87	17.78	2.67	1.96(0.05) 2.58(0.01)	Significant at the 0.01 level
Girls	140	174.79	18.13			
TOTAL	445					
	(SED) *(SED)	3.384	Hypothesis 3 is rejected at the degree of freedom 2292			
	SED	1.840				
	M1-M2	4.92				
	t value	2.67				

As mentioned in Table 4, the calculated value of t is 2.67. The table values are 1,96 and 2.58, respectively, for 0.05 and 0.01 significance levels. The calculated t value is higher than the table value at the 0.01 significance level. A significant difference exists in the affective disposition mean scores obtained on critical thinking skills for boys and girls. The null hypothesis 3 is not accepted. Affective disposition on essential thinking skills of girls (174.79) is higher than that of boys (169.87).

H04. There will be no significant difference in the mean score of the affective disposition sub-dimension (Ethics and values, Self-confidence, Inquisitiveness, Open-mindedness), obtained regarding critical thinking skills between boys and girls.

Table 5: Significant difference in the mean score of the affective disposition sub-dimension (Ethics and values, Self-confidence, Inquisitiveness, Open-mindedness) obtained regarding critical thinking skills between boys and girls.

Affective disposition on critical thinking skills	Gender	Numbers	Mean	Standard Deviation	t value	t table	Significance
Ethics and values	Boys	305	37.54	3.87	3.28	1.96(0.05) 2.58(0.01)	Significant at 0.01
	Girls	140	38.89	4.11			
Self-confidence	Boys	305	45.56	5.32	3.07		Significant at 0.01
	Girls	140	47.21	5.24			
Inquisitiveness	Boys	305	55.04	6.11	2.98		Significant at 0.01
	Girls	140	56.92	6.21			
Open-mindedness	Boys	305	30.99	3.22	5.84		Significant at 0.01
	Girls	140	32.95	3.32			

As mentioned in Table 5, the calculated value of t for all components of Affective dispositions is higher than the table value. Differences are seen in the mean scores of boys and girls in ethics and values, Self-confidence, Inquisitiveness, and Open-mindedness.

The cognitive disposition of girls (38.89) regarding essential thinking skills, Ethics, and values is higher than that of boys (37.54).

The cognitive disposition of girls (47.21) regarding essential thinking skills and self-Confidence is higher than that of boys (45.56).

The cognitive disposition of girls (56.92) regarding essential thinking skills, Inquisitiveness, is higher than that of boys (55.04).

The cognitive disposition of girls (32.95) regarding essential thinking skills and open-mindedness is higher than that of boys (30.99).

RESULT AND DISCUSSION:

Overall, the results show that girls have higher scores than boys in the context of critical thinking skills in the cognitive and affective domains and in all components. All hypotheses show a significant difference between boys and girls in CTS.

To enhance critical thinking, schools should:

1. Integrate critical thinking skills into all subjects through activities like debates, case studies, and project-based learning.
2. Provide professional development for teachers on critical thinking pedagogies.
3. Reduce reliance on high-stakes testing that prioritizes rote learning.
4. Solve problems creatively and effectively
5. Make informed decisions based on reasoning rather than emotions
6. Develop independent learning habits and intellectual curiosity

CONCLUSION

Critical thinking is essential for high school students to thrive in academic and real-world contexts. While some students demonstrate strong analytical skills, many face barriers due to outdated teaching methods and systemic constraints. Schools can better equip students with the critical thinking skills needed for the 21st century by adopting inquiry-based learning, enhancing teacher training, and revising curricula. Future research should focus on longitudinal studies to assess the long-term impact of critical thinking interventions.

REFERENCES

Abrami, P. C., et al. (2008). Instructional interventions affecting critical thinking skills and dispositions: A stage 1 meta-analysis. *Review of Educational Research*, 78(4), 1102–1134.

Bailin, S., et al. (1999). Conceptualizing critical thinking. *Journal of Curriculum Studies*, 31(3), 285–302.

Best & Khan, (1995): "Research in Education", McGraw-Hill Publication, New Delhi.

Ennis, R. H. (1989). Critical thinking and subject specificity: Clarification and needed research. *Educational Researcher*, 18(3), 4–10.

Facione, P. A. (1990). *Critical thinking: A statement of expert consensus for educational assessment and instruction*. American Philosophical Association.

Halpern, D. F. (2014). *Thought and knowledge: An introduction to critical thinking*. Psychology Press.

Ku, K. Y. L. (2009). Assessing students' critical thinking performance: Urging for measurements using the multi-response format. *Thinking Skills and Creativity*, 4(1), 70–76.

Paul, R., & Elder, L. (2006). *Critical thinking: Tools for taking charge of your learning and your life*. Pearson.

Siddhu, Kulbir Singh (1978). *Methodology of Research in Education*, New Delhi: Sterling Publishers Pvt. Ltd.

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Conflict of Interest

The author declared no conflict of interest.

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