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Relationship Between Critical Thinking and Creative Thinking among Secondary School Students

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Abstract

The development of higher-order cognitive skills has become a central goal of contemporary education systems. Among these skills, critical thinking and creative thinking are widely regarded as essential competencies that enable learners to analyze information, generate new ideas, and solve complex problems. The present study examines the relationship between critical thinking and creative thinking among secondary school students. A quantitative descriptive survey research design was employed for the study. The sample consisted of 600 Class IX students selected through stratified random sampling from government and private secondary schools. Data were collected using the Murthy Critical Thinking Scale (MCTS) and the Verbal and Non-Verbal Creative Thinking Test developed by Baquer Mehdi. Statistical analysis was conducted using descriptive statistics and Pearson's Product Moment Correlation. The findings revealed that secondary school students generally demonstrate moderate levels of both critical thinking and creative thinking. The correlation analysis indicated a statistically significant positive relationship between critical thinking and creative thinking. The results suggest that students who possess stronger analytical reasoning abilities also tend to exhibit greater originality and flexibility in thinking. The study highlights the importance of integrating instructional strategies that simultaneously promote critical and creative thinking skills in classroom environments. The findings provide useful implications for educators, curriculum developers, and policymakers seeking to foster holistic cognitive development among secondary school students.

Keywords: Critical thinking, creative thinking, secondary education, cognitive skills, higher-order thinking

1. Introduction

Education plays a fundamental role in developing the intellectual capabilities of learners. In recent decades, the focus of educational systems has shifted from simple knowledge acquisition to the development of complex cognitive abilities that enable learners to analyze, evaluate, and generate ideas.

Critical thinking is widely recognized as an essential skill for effective learning and decision-making. It involves the ability to analyze arguments, evaluate evidence, and draw logical conclusions. Students who develop critical thinking skills are better equipped to assess information critically and make rational judgments.

Creative thinking, on the other hand, refers to the ability to generate new ideas, explore multiple perspectives, and produce innovative solutions to problems. Creative thinking encourages learners to think beyond conventional patterns and explore alternative possibilities.

Researchers have emphasized that both critical thinking and creative thinking are important components of higher-order cognitive functioning. While critical thinking focuses on analysis and evaluation, creative thinking emphasizes originality, flexibility, and imagination.

At the secondary school level, students begin to develop more sophisticated cognitive abilities that enable them to engage with complex academic tasks. Therefore, understanding the relationship between critical thinking and creative thinking is essential for improving educational practices.

The present study seeks to examine the relationship between critical thinking and creative thinking among secondary school students.

2. Review of Literature

2.1 Critical Thinking in Education

Critical thinking has been widely acknowledged as a central component of effective learning. Ennis (2015) defined critical thinking as reflective and rational thinking that focuses on deciding what to believe or do.

Facione (2016) emphasized that critical thinking includes cognitive processes such as analysis, interpretation, inference, and evaluation. These skills allow individuals to assess information systematically.

Halpern (2014) argued that critical thinking enhances students' ability to solve problems and make informed decisions.

2.2 Creative Thinking

Creative thinking refers to the ability to generate new ideas and explore innovative approaches to solving problems. Torrance (1974) described creativity as the process of sensing problems, generating ideas, testing hypotheses, and communicating results.

Baquer Mehdi (1973) emphasized that creative thinking involves fluency, flexibility, originality, and elaboration.

2.3 Relationship between Critical Thinking and Creative Thinking

Several studies have explored the relationship between critical thinking and creativity. Sternberg (2018) argued that analytical and creative thinking are complementary processes that contribute to effective intellectual functioning.

Research conducted by Kim et al. (2014) found that students who engage in activities promoting critical thinking also demonstrate higher levels of creative thinking.

These studies suggest that critical thinking and creative thinking are interconnected cognitive processes.

3. Objectives of the Study

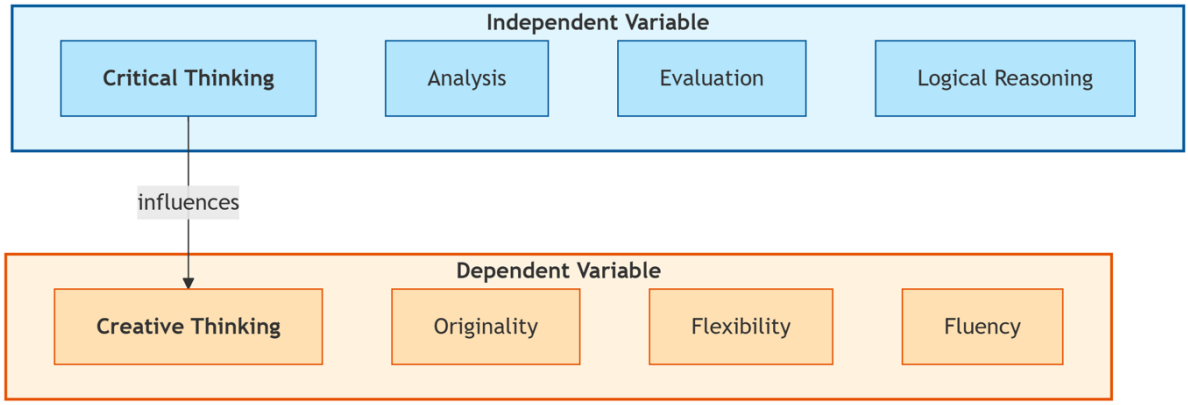
The primary objective of the study is:

To examine the relationship between critical thinking and creative thinking among secondary school students.

4. Hypothesis

H_0: There will be no significant relationship between critical thinking and creative thinking among secondary school students.

5. Conceptual Framework



The conceptual framework assumes that higher levels of critical thinking may contribute to stronger creative thinking abilities among students.

6. Methodology

6.1 Research Design

The present study adopted a descriptive survey research design to investigate the relationship between critical thinking and creative thinking among secondary school students. Descriptive research allows the researcher to examine the current status of variables and identify relationships among them without manipulating the study environment.

6.2 Population of the Study

The population of the study consisted of secondary school students studying in Class IX in Hyderabad city. Students at this level are exposed to academic tasks requiring analytical reasoning and creative expression, making them suitable participants for studying higher-order thinking skills.

6.3 Sample of the Study

A sample of 600 secondary school students was selected using stratified random sampling.

Table 1

Distribution of the Sample

Category	Number of Students	Percentage
Government School Students	300	50%
Private School Students	300	50%
Male Students	300	50%
Female Students	300	50%
Total	600	100%

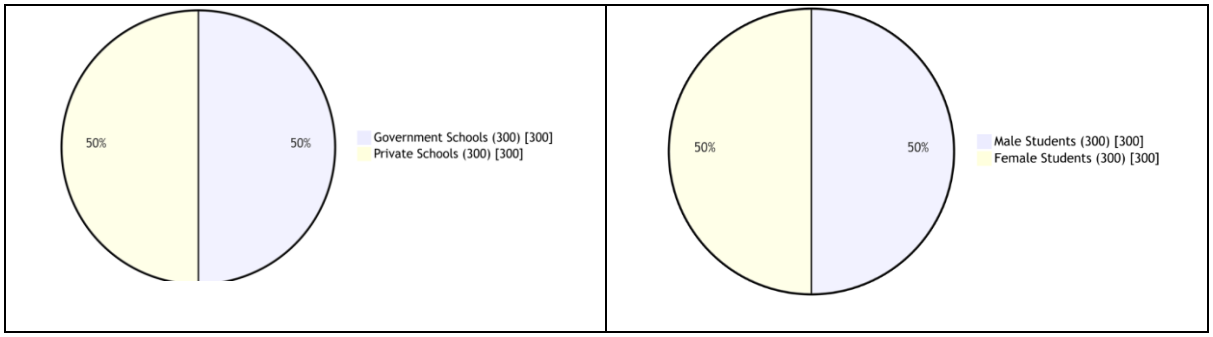


Table 2

Demographic Distribution of the Sample

Category	Frequency	Percentage
Male	300	50%
Female	300	50%
Government Schools	300	50%
Private Schools	300	50%
Total	600	100%

6.4 Sampling Technique

Stratified random sampling technique was used.

6.5 Tools Used

1. Murthy Critical Thinking Scale (MCTS)
2. Baquer Mehdi Creative Thinking Test

6.6 Data Collection Procedure

1. Permission was obtained from school authorities.
2. Students were informed about the study.
3. Tests were administered in classroom settings.
4. Responses were scored using standardized scoring procedures.

6.7 Statistical Techniques

- Mean
- Standard Deviation
- Pearson's Correlation

7. Results

Table 3

Mean and Standard Deviation of Critical Thinking Scores

Variable	N	Mean	SD
Critical Thinking	600	68.42	14.37

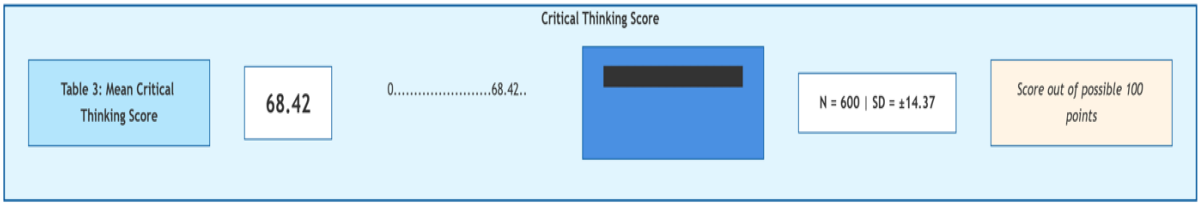


Table 4

Mean and Standard Deviation of Creative Thinking Scores

N	Mean	SD
600	71.86	15.24

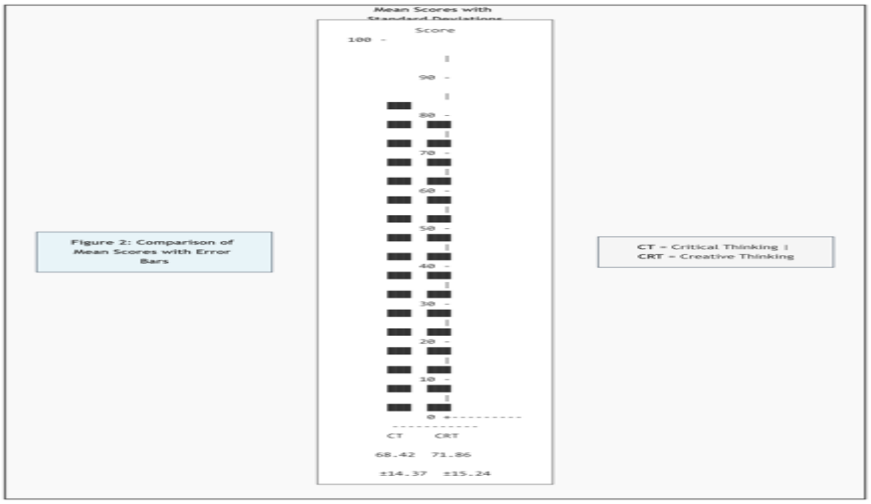
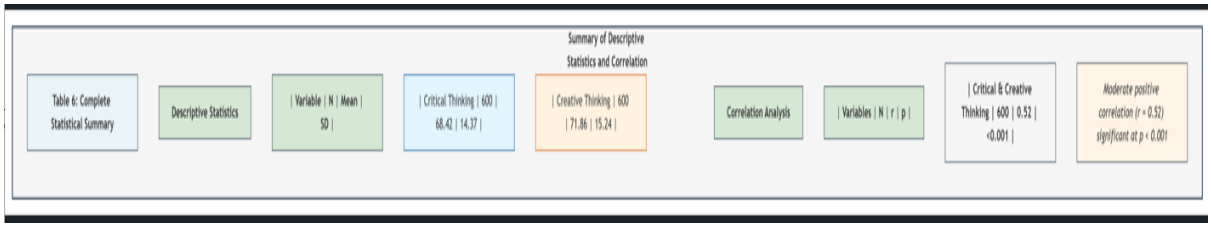


Table 5

Correlation between Critical Thinking and Creative Thinking

Variables	N	r	p
Critical Thinking & Creative Thinking	600	0.52	<0.001



Interpretation:
The correlation coefficient indicates a moderate positive relationship between critical thinking and creative thinking. The p-value shows that the relationship is statistically significant.

8. Discussion

The findings reveal a significant positive relationship between critical thinking and creative thinking among secondary school students. Students who demonstrate strong analytical reasoning abilities also tend to exhibit higher levels of originality and flexibility in thinking.

These findings are consistent with previous studies suggesting that analytical and creative thinking processes complement each other in cognitive development.

9. Conclusion

The study concludes that critical thinking and creative thinking are significantly related among secondary school students. Students with higher levels of critical thinking tend to exhibit stronger creative thinking abilities.

Educational practices should therefore encourage activities that simultaneously promote analytical reasoning and creative expression.

10. Educational Implications

The findings suggest several implications:

- Teachers should encourage brainstorming and inquiry-based learning.
- Classroom activities should integrate analytical and creative thinking tasks.
- Curriculum designers should include creative problem-solving exercises.
- Teacher training programs should focus on developing higher-order thinking skills.

11. Suggestions for Future Research

Future studies may focus on:

- Experimental studies on creativity development programs
- Comparative studies across different educational levels
- Cross-cultural studies on thinking skills

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