



## Effectiveness of Critical Thinking Programme on Students of Class IX in Relation to Gender

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### Abstract:

*Children are not born with the power to think critically, nor do they develop this ability naturally beyond survival-level of thinking. Critical thinking is a learned ability that must be taught. Most individuals never learn it. Critical thinking cannot be taught reliably to students by peers or by most parents. Trained and knowledgeable instructors are necessary to impart the proper information and skills. Present study is an attempt to find effectiveness of critical thinking programme developed for enhancement of critical thinking for the students of standard IX in relation to certain variables.*

**Keywords:** *Critical Thinking Programme, Effectiveness, Gender*

### 1. Introduction

The purpose of developing critical thinking is to improve the thinking skills of students and thus better prepare them to succeed in the world. But, we may ask, can't we automatically teach critical thinking when we teach our subjects, especially mathematics and science, the two disciplines which supposedly epitomize correct and logical thinking? The answer, sadly, is often 'NO'. Please consider these two observations:

*"It is strange that we expect students to learn, yet seldom teach them anything about learning."*

- Donald Norman, 1980

*"We should be teaching students how to think. Instead, we are teaching them what to think."*

-Clement and Lochhead, 1980

Perhaps one can now see the problem. All education consists of transmitting to student two different things: (1) the subject matter or discipline content of the course ("what to think") and (2) the correct way to understand and evaluate this subject matter ("how to think"). We do an excellent job of transmitting the content of our respective academic disciplines, but we often fail to teach students how to think effectively about this subject matter, that is, how to properly understand and evaluate it. This second ability is termed critical thinking.

### 2. Objectives

1. To study the effectiveness of programme enhancing critical thinking.
2. To study the effectiveness of programme enhancing critical thinking in relation to gender.

### 3. Variables

**Independent variable:** The independent variable for the present study were

- (a) Gender (Boy, Girl) (b) Critical Thinking Programme

**Dependent variables**

Score obtained by the student of class 9<sup>th</sup> on Critical Thinking Test.

**Controlled variable:**

The controlled variable for the present study is

- (a) Standard 9<sup>th</sup> (b) Content Matter

#### 4. Hypotheses

The following hypotheses were formulated in pursuance of the objectives and variables of the study

- H<sub>01</sub>:** There will be no significant difference between the mean scores of critical thinking for pre-test and post-test.
- H<sub>02</sub>:** There will be no significant difference between the mean scores of critical thinking of Boys for pre-test and post-test.
- H<sub>03</sub>:** There will be no significant difference between the mean scores of critical thinking of Girls for pre-test and post-test.
- H<sub>04</sub>:** There will be no significant difference between the mean scores of critical thinking for Boys and Girls in post-test.

#### 5. Research Method

Experimentation method was used for the study.

#### 6. Experimental Design

In the present study One-Group Pretest-Posttest experimental research design was used to find the effectiveness of Critical thinking programme.

#### 7. Population

Population of the present study was the students of standard IX of Anand district.

#### 8. Sample

Random sampling technique was used for the sample of 53 students out of which 26 were boys and 27 were girls from Anand High School of Anand district.

#### 9. Research tools

Critical thinking test was constructed and standardized by the investigator was used for the present study. Critical Thinking Programme was developed for enhancement of critical thinking of the students.

#### 10. Data analysis technique

Mean and standard deviation was calculated. 't' value was used to test hypothesis.

#### 11. Testing of Hypotheses

**H<sub>01</sub>:** There will be no significant difference between the mean scores of critical thinking for pre-test and post-test.

**Table 1 Mean, S.D. and 't' value for Pre-test and Post-test data**

	N	Mean	SD	SE <sub>D</sub>	t Value
Pre-test	53	15.79	4.40	1.09	7.04
Post-test	53	23.47	6.60		

The 't' value was found from above table 1 to be 7.04 was significant at 0.01 level and it indicates that the null hypothesis was rejected. i.e. there exists significant difference between the pre-test and post-test score of the students. It shows that critical thinking programme was found effective for the students.

**H<sub>02</sub>:** There will be no significant difference between the mean scores of critical thinking of Boys for pre-test and post-test.

**Table 2 Mean, S.D. and 't' value for Pre-test and Post-test data of Boys**

Boys	N	Mean	SD	SE <sub>D</sub>	t Value
Pre-test	26	15.96	4.61	1.58	4.19
Post-test	26	22.57	6.59		

The 't' value was found from above table 2 to be 4.19 were significant at 0.01 level and it indicates that the null hypothesis was rejected. i.e. there exists significant difference between the pre-test and post-test score of the boys. It shows that critical thinking programme was found effective for the boys.

**Ho<sub>3</sub>:** There will be no significant difference between the mean scores of critical thinking of Girls for pre-test and post-test.

**Table 3 Mean, S.D. and 't' value for Pre-test and Post-test data of Girls**

Girls	N	Mean	SD	SE <sub>D</sub>	t Value
Pre-test	27	15.62	4.27	1.52	5.73
Post-test	27	24.33	6.63		

The 't' value was found from above table 3 to be 5.73 were significant at 0.01 level and it indicates that the null hypothesis was rejected. i.e. there exists significant difference between the pre-test and post-test score of the girls. It shows that critical thinking programme was found effective for the girls.

**Ho<sub>4</sub>:** There will be no significant difference between the mean scores of critical thinking for Boys and Girls in post-test.

**Table 4 Mean, S.D. and 't' value for Pre-test and Post-test data of Boys**

Post-test	N	Mean	SD	SE <sub>D</sub>	t Value
Boys	26	22.57	6.59	1.82	0.96
Girls	27	24.33	6.63		

The 't' value was found from above table 4 to be 0.96 were not significant at 0.05 level and it indicates that the null hypothesis was accepted. i.e. there does not exist significant difference between the post-test score of the boys and girls. It shows that critical thinking programme was found equal effective for the boys and girls.

## 12. Findings

1. The mean score of students in post-test is higher than that of pre-test which shows the effectiveness of critical thinking programme.
2. Critical thinking score of boys in post-test is higher than that of pre-test, which shows critical thinking programme is effective for boys. Critical thinking of boys enhances considerably after critical thinking programme.
3. Critical thinking score of girls in post-test is higher than that of pre-test, which shows Critical Thinking Programme is effective for girls. Critical thinking of girls enhances considerably after critical thinking programme.
4. There is no gender effect in effectiveness of critical thinking programme. Critical thinking programme is equally effective for boys and girls.

## 13. Educational implications

Critical thinking programme can be used to enhance critical thinking of students of standard IX. Critical thinking programme can be used to enhance critical thinking of students of any gender as there is no gender effect found on critical thinking of boys and girls.

#### 14. Conclusion

Knowledge commission of India aims at Knowledge society. Knowledge society is bound to be thinking society. Our education is also focusing thinking curriculum, teaching learning process and assessment. In this context, critical thinking programme can be used to enhance critical thinking of standard IX. It also indicates that there is no gender effect for the score obtained by boys and girls.

#### References

1. Anastasi, Anne (1970). Psychological Testing (7<sup>th</sup> Ed.), London: The Macmillan Company.
2. Clement & Lochhead (1980). Cognitive Process Instruction. Hillsdale, NJ: Lawrence Erlbaum Associates.
3. D'Angelo, E. (1971). The teaching of critical thinking (Vol. 1). N.V.: B.R. Gruner, Amsterdam, Netherlands.
4. Donald, Norman (1980). Cognitive engineering and education, in Problem Solving and Education: Issues in Teaching and Research, edited by D.T. Tuna and F. Reif, Erlbaum Publishers.
5. Patel, R.S. (2011). Statistical Methods for Educational Research. Jay Publication, Ahmedabad.
6. Paul, R. (1993). Critical thinking: What every person needs to survive in a rapidly changing world (J. Willson & A. J. A. Binker, Eds.). Santa Rosa, CA: Foundation for Critical Thinking.