

# Development of Critical Thinking Skill Programme for the Student Teachers of Diploma in Teacher Education colleges

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**Abstract** The importance of education and its role should be to open up minds and ensure that it thinks reasons and analyzes. The National Curriculum Framework 2005 places demands and expectations on the teacher, which need to be addressed by both initial and continuing teacher education. To enhance the knowledge, values and skill among student it is necessary to enhance these in teacher first. Critical thinking is a type of reasonable, reflective thinking that is aimed at deciding what to believe or what to do. This paper examines the critical thinking skill of three D.T.Ed, college student teachers' in the Kolhapur city and develop a programme to check the effectiveness of It. Findings are discussed most of the student teachers are poor in acquiring expanding question skill aspect, evaluating question skill aspect and analyzing question skill aspect of critical thinking skill. The treatment given to experimental group has produced significant difference in score of critical thinking skill and it can be said that the programme on development of critical thinking skill significantly enhances the critical thinking skill.

**Keywords :** development critical thinking skill, student teachers, Diploma in Teacher Education improvement

## 1. INTRODUCTION

*“Education is the provision of a series of learning experiences to students in order to impart knowledge, values, attitudes and skills with the ultimate aim of making them productive members of society.”*

-Wade (1995)

This definition itself gives the role of education in human life. We are all born with our individual intelligence quotient, but it fails to work unless we educate ourselves. Education is not just about training how to write and read; it is rather about learning how to develop a moral character and how to become a dignified person. Education helps you to learn from

Issues and Ideas  
in Education  
Vol. 2, No. 1  
March 2014  
pp. 25–37



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your own mistakes, and that is how achievers are born. Effective education programs include the process of creating problems and solving them with their own methods. It teaches you how to think, and reason, not just how to follow.

The importance of education and its role should be to open up minds and ensure that it thinks reasons and analyzes. A combination of your learning process, with action will allow you to ensure that you seek a better understanding of a subject. It is the teacher who is mainly responsible for implementation of the educational process at any stage. The National Curriculum Framework 2005 places demands and expectations on the teacher, which need to be addressed by both initial and continuing teacher education. The educator's role now is to train students the skills and habits of mind that will enable them to find, identify, evaluate, and use high-quality information in independent and high-level ways. To enhance the knowledge, values and skill among student it is necessary to enhance these in teacher first. Teacher training is the base so it necessary to them to enhance these.

There are many skills which require for human as a learner. These skills are observation, analysis, handling, synthesize and thinking etc. In thinking also many sub skills are present that are Vertical thinking, Lateral thinking, Creative thinking, Critical thinking, scientific thinking etc. In all thinking process critical thinking is require basically.

Critical thinking is a type of reasonable, reflective thinking that is aimed at deciding what to believe or what to do. It is a way of deciding whether a claim is always true, sometimes true, partly true, or false. Critical thinking is an important component of most professions. It is a part of the formal education process and is increasingly significant as student's progress through university to graduate education. Critical thinking is not the same as, and should not be confused with, intelligence; it is a skill that may be improved in everyone (Walsh and Paul 1988, 13).

The list of core critical thinking skills includes observation, interpretation, analysis, inference, evaluation, explanation, and meta-cognition. Critical thinking, as opposed to rote memorization, involves active and skillful demonstration of higher-order thinking skills (analysis, synthesis, and evaluation) among learners. Engaging students in discussions that demand demonstrations of these thinking skills will provide them the opportunity to grow in their understanding of a new knowledge by breaking it into parts to explore understandings and relationships (analysis), by putting together its general rule or by explaining its proper process (synthesis), by justifying a decision or course of action (evaluation), by generating new ideas, products, or ways of viewing things (creation), and by becoming aware of their thinking processes (metacognition).

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Through extensive and intensive exploration of the new knowledge, students will not simply accept propositions as valid and sound without critically deliberating and evaluating it. However, it is not something that necessarily develops with maturity and so should be taught to all ages.

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### **Need of study**

If we teach children everything we know, their knowledge is limited to ours. If we teach children to think, their knowledge is limitless. Our ability to succeed in life is directly proportional to our ability to solve the problems we encounter along life's journey. Tragically, elementary and secondary education is mostly memorization. The biggest problem facing Indian education today is the inability of most teachers to think analytically. So they can't teach student to think critically.

It concludes that, if we want students think critically we ensure that teachers should think critically. When we think critically, there are many reasons for wanting teachers to be better at critical thinking. These are some of them:

- i. Teacher will be better equipped to complete effectively for educational opportunities, jobs, recognition and rewards in our society,
- ii. Critical thinking is a prerequisite for good citizenship,
- iii. The ability to think well contributes to a person's psychological well-being; good thinkers are more likely to be well-adjusted individuals than no so good thinkers,
- iv. We cannot afford for our teacher and students not to be critical thinkers. Our civilization faces some very complex and threatening problems. We are now smart enough to destroy ourselves as a species, and, unless we learn to be better thinkers in a broad sense, we may well do so.
- v. Thinking is at the heart of what it means to be human, so to fail to develop your thinking potential is to preclude the full expression of your humanity,
- vi. Critical thinking is increasingly needed to perform effectively in the workplace.

### **1.1. The operational definitions of the terms used in the title of the research**

#### **1) Development**

Development means the improvement of critical thinking skill after participating in the programme.

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## **2) Critical thinking skill**

Critical thinking is the intellectually disciplined process of actively and skillfully expanding, analyzing and evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action.

## **3) Programme**

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Systematic plan which includes various activities that improve critical thinking skill. It also includes learning experiences related to contents of daily life experiences, activities to develop critical thinking skill.

## **4) Student teacher**

For the present study researcher use the definition, a student teacher is D.T.Ed, student studying for Diploma in Teacher Education college in Kolhapur city.

## **3. OBJECTIVES OF THE STUDY**

1. To find out the critical thinking skill among student teacher in Diploma in Teacher Education colleges.
2. To prepare a programme for development of critical thinking skill among student teacher in Diploma in Teacher Education colleges.
3. To test the effectiveness for development of critical thinking skill programme among student teachers in Diploma in Teacher Education colleges.

## **4. ASSUMPTIONS OF THE STUDY**

1. Critical thinking skill is essential for teaching-learning process.
2. Critical thinking can be developed.

## **5. HYPOTHESES IN THE STUDY**

### **1. Research hypothesis**

There is significant difference in Critical Thinking Skill pretest and posttest score of student teachers after the implementing the Critical Thinking Skill programme.

### **2. Null hypothesis**

There is no significant difference in Critical Thinking Skill pretest and posttest score of student teachers after the implementing the Critical Thinking Skill programme.

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## 6. DELIMITATIONS OF THE RESEARCH

The study was delimited for the 2<sup>nd</sup> year student teachers of Diploma in Teacher Education colleges of the year 2012-2013 in Kolhapur City.

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## 7. SCOPE OF THE RESEARCH

1. The result may be generalized to critical thinking skill.
2. The result of the study may be generalized to all Diploma in Teacher Education colleges among student teachers of Maharashtra state.
3. The result can be generalized to all Diploma in Teacher Education colleges among student teachers in the different states of India with similar conditions.

## 8. SIGNIFICANCE OF THE RESEARCH

1. The study will be useful to the educational institutes to deal with critical thinking skill suggested in the study.
2. The result of the study will be useful to the government to make appropriate policies for critical thinking skill.
3. The results of the study are useful to teacher educator to help student teachers to deal with critical thinking skill.

## 9. RESEARCH PROCEDURE

### I Phase

For the present study researcher convert CAAP critical thinking skill test to Marathi language.

### II Phase Survey method

For the present study researcher was survey in diploma in teacher education colleges among 126 student teachers the critical thinking skill and taking pretest and analyzed the score.

### III Phase Development Critical Thinking Skill Programme

In the present study researcher develop of programme on critical thinking skill.

### IV Phase Experimental method

For this research researcher testing critical thinking programme selected one D.T.Ed, college for administering the programme and then took posttest to measure the effectiveness of critical thinking skill among student teachers.

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## **10. FACE VALIDITY**

Face validity is a simple form of validity in which researchers determine if the test seems to measure what is intended to measure. This is not a technical measure but reference to the overt nature and superficial appearance of the test. It has to do with whether test-takers find the test meaningful and whether test users find it useful and appropriate to their assessment needs.

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Face validity, therefore, can be important because it increases motivation and compliance etc. Obviously, face validity only means that the test looks like it works. It does not mean that the test has been proven to work. However, if the measure seems to be valid at this point, researchers may investigate further in order to determine whether the test is valid and should be used in the future (Nevo, 1985).

## **11. CRITICAL THINKING TEST**

In this study researcher convert the test with reference to Howard College's Critical Thinking Test of CAAP (Collegiate Assessment of Academic Proficiency) for development of critical thinking skill among student teachers.

The aim of this test is to give a sense of the kinds of questions examinees will face and their levels of difficulty. An answer key is provided at the end of the test.

The Critical Thinking Test that measures students' skills at analyzing, evaluating, and extending arguments. An argument is defined as a sequence of statements that includes a claim that one of the statements, the conclusion, follows from the other statements. The Critical Thinking Test consists of four passages that are representative of the kinds of issues commonly encountered in a postsecondary curriculum.

A passage typically presents a series of subarguments in support of a more general conclusion or conclusions. Each passage presents one or more arguments using a variety of formats, including case studies, debates, dialogues, overlapping positions, statistical arguments, experimental results, or editorials.

To measure the achievement of student teachers in critical thinking skill, this test was prepared. General features of this test are as follows:

- (a) Test is of 4 passages and 32 questions.
- (b) Question items are objective that is multiple choice questions.
- (c) All questions in test carry equal marks. ( 1 mark for each question)
- (d) Test is of 32 marks.
- (e) The student teachers have to complete this test in 40 minutes.

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## 1.2. Programme for development of Critical Thinking skill

The aim of this programme is to enhance critical thinking skill score of student teachers in posttest which taken after the implementing the programme. An answer key is provided at the end of the sections.

The programme for development of Critical Thinking skill is a 3 parts and 10 hours that measures students' skills at analyzing, evaluating, and extending arguments. The programme of development of Critical Thinking Test consists of three parts.

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**Table 1 :** The description of Critical thinking skill programme.

Part No.	Section No.	Title of section
1.		Introduction about critical thinking skill
2.		Questions of critical thinking skill
	1.1	Basic questions of critical thinking skill and answers of it
	1.2	Questions of critical thinking skill and the directional chart which give guidance for choose right answer
	1.3	Issues commonly encountered of critical thinking skill in a daily life and options for the questions asked below
3.		The guidance according to answers given by student teachers

## 12. STATISTICAL TECHNIQUES

1. Mean
2. Standard deviation
3. 't'test

## 13. DATA ANALYSIS AND HYPOTHESES TESTING

### Survey method

To find out the present situation of student teachers acquiring the critical thinking skill, mean is used. Here sample of 126 student teachers were examined and the observations are:

## 14. OBSERVATIONS

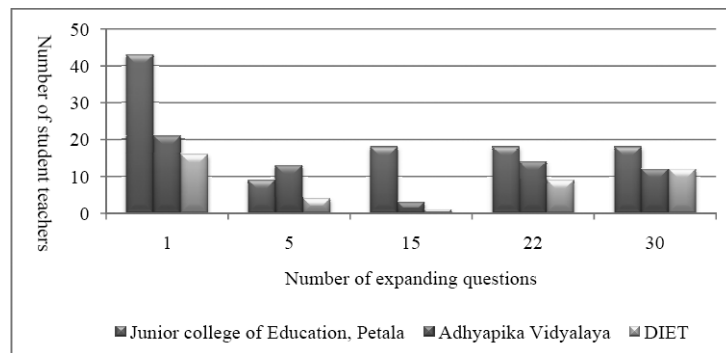
From the above Table 1, the total of Jr. college of Edu, Petala for expanding question is 106 and the mean score is 21.2. The total of Adhyapika Vidyalaya for expanding question is 63 and the mean score is 12.6. The total of DIET Kolhapur for expanding question is 42 and the mean score is 8.4

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**Table 1:** The result of survey method for expanding questions.

Sr. No.	Expanding question			i
	Jr. college of Education, Petala	Adhyapika Vidyalaya	District Institute of Education & Training Kolhapur	
Q.1	43	21		16
Q.5	9	13		4
Q. 15	18			1
Q. 22	18	14		9
Q.30	18	12		12
Sum	<b>106</b>	<b>63</b>		42
Mean	<b>21.2</b>	<b>12.6</b>		8.4



**Graph 1:** The graph of result of survey method for expanding question

## 15. INTERPRETATION

From the above observation, the mean of Jr. college of Edu, Petala is comparatively higher than other two colleges mean score. The mean of Adhyapika Vidyalaya is in between other two colleges mean score. So the score is average. The mean of DIET Kolhapur is comparatively lower than other two colleges mean score.

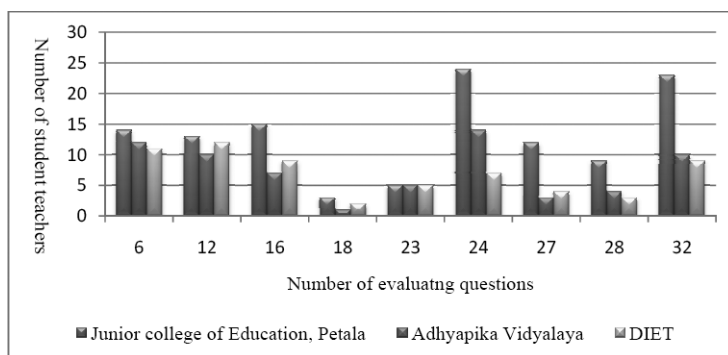
## 16. OBSERVATIONS

From the above Table 4.2, the total of Jr. college of Edu, Petala for evaluating question is 118 and the mean score is 13.1. The total of Adhyapika Vidyalaya



**Table 2:** The result of survey method for evaluating question

Sr. No.	Evaluating question		
	Jr. college of Education, Petala	Adhyapika Vidyalaya	District Institute of Education & Training Kolhapur
Q.6	14	12	11
Q. 12	13	10	12
Q. 16	15	7	9
Q. 18	3	1	2
Q.23	5	5	5
Q.24	24	14	7
Q. 27	12	3	4
Q.28	9	4	3
Q.32	23	10	9
Sum	<b>118</b>	<b>66</b>	<b>62</b>
Mean	<b>13.11</b>	<b>7.33</b>	<b>6.88</b>



**Graph 2 :** The graph of result of survey method for evaluating question

for evaluating question is 66 and the mean score is 7.33. The total of DIET Kolhapur for evaluating question is 62 and the mean score is 6.88.

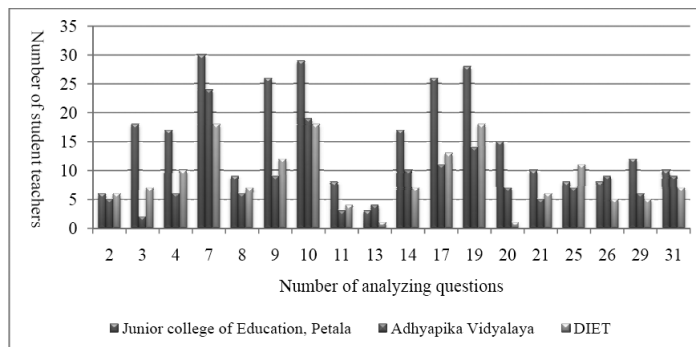
## 17. INTERPRETATION

From the above observation, the mean of Jr. college of Edu, Petala is comparatively higher than other two colleges mean score. The mean of

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**Table 3 :** The result of survey method for analyzing question

Sr. No.	Analyzing question		
	Jr. college of Education, Petala	Adhyapika Vidyalaya	District Institute of Education & Training Kolhapur
Q.2	6	5	6
Q.3	18	2	7
Q.4	17	6	10
Q.7	30	24	18
Q.8	9	6	7
Q.9	26	9	12
Q. 10	29	19	18
<b>Q.11</b>	8	3	4
<b>Q. 13</b>	3	4	1
<b>Q. 14</b>	17	10	7
<b>Q. 17</b>	26	11	13
<b>Q. 19</b>	28	14	18
<b>Q.20</b>	15	7	1
Q. 21	10	5	6
Q.25	8	7	11
<b>Q.26</b>	8	9	5
<b>Q.29</b>	12	6	5
<b>Q.31</b>	10	9	7
Sum	<b>436</b>	<b>312</b>	<b>156</b>
Mean	<b>24.22</b>	<b>17.33</b>	<b>8.66</b>



**Graph 3 :** The graph of result of survey method for analyzing question

Adhyapika Vidyalaya is in between other two colleges mean score. So the score is average. The mean of DIET Kolhapur is comparatively lower than other two colleges mean score.

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## 18. OBSERVATIONS

From the above Table 4.3, the total of Jr. college of Edu, Petala for analyzing question is 436 and the mean score is 24.22. The total of Adhyapika Vidyalaya for analyzing question is 312 and the mean score is 17.33. The total of DIET Kolhapur for analyzing question is 156 and the mean score is 8.66

**Table 4:** Mean, standard deviation and 't' ratio of critical thinking skill of student teachers experimental group in pretest and posttest.

Sr. No	Group	No. of sample (N)	Mean (M)	Standard deviation (SD)	Degree of freedom (df)	Calculated 't' value	Table 't' value		Remark
							0.05	0.01	
1.	Pretest	30	8.9	2.64	29	3.32	2.0	2.7	Significant
2.	Posttest	30	13.6	3.11					

## 19. INTERPRETATION

From the above observation, the mean of Jr. college of Edu, Petala is comparatively higher than other two colleges mean score. The mean of Adhyapika Vidyalaya is in between other two colleges mean score. So the score is average. The mean of DIET Kolhapur is comparatively lower than other two colleges mean score.

### 1.3. Experimental method Testing of research hypothesis

There is significant difference in pretest and posttest score of student teachers after the development of critical thinking skill in Kolhapur city.

## 20. OBSERVATION

Mean value of score of experimental group is 8.9 and its standard deviation is 2.64. Mean value of score of control group is 13.66 and its standard deviation is 3.11. There is difference between means. This difference is tested by using 't' test. Calculated 't' value is 3.32, which is found to be significant.

## 21. INTERPRETATION

The difference between the experimental group score of critical thinking skill in pretest and posttest found to be significant.

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Therefore, the null hypothesis is rejected and research hypothesis accepted.

#### 1.4. Result of study according to objective

1. To find out the critical thinking skill among student teacher in Diploma in Teacher Education colleges. *S* Most of the student teachers are poor in acquiring expanding question skill aspect of critical thinking skill. *S* Most of the student teachers are poor in acquiring evaluating question skill aspect of critical thinking skill. *S* Most of the student teachers are poor in acquiring analyzing question skill aspect of critical thinking skill.
2. To test the effectiveness for development of critical thinking skill programme among student teachers in Diploma in Teacher Education colleges. *S* Hence the treatment given to experimental group has produced significant difference in score of critical thinking skill and it can be said that the programme on development of critical thinking skill significantly enhances the critical thinking skill.

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