CHAPTER 1

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CHAPTER I

INTRODUCTION

1.1 PREFACE

We know that student and teacher are the main parts of the classroom. As a result of interaction between student and teacher we get Teaching-Learning process and this process is called Education.

In education ‘teaching’ and ‘learning’ are the common words. In ancient period teachers provide only information to students. Teachers only taught them. Students could not learned by teaching but they learn from interaction with surrounding environment. So that the word ‘Instruction’ could be arisen. Thus interaction is a process of various component of provided environment. In education ‘Instruction’ word provided all the experience of learner to use for students. There for a lot of people used the word ‘Teaching’ instead of ‘Instruction’. But actually teaching is limited form of instruction.

Due to this ‘Learning Psychology’ exist as a stream and this Learning Psychology give principles of psychology. These principles indicate guideline for arrangement to achieve educational goal.

Analysis process of skillful behavior is developed by research of learning in America and Europe during 1950 (Skinner). The combination of education and psychology change educational field by the experiment of Skinner’s operant conditioning as a revolution for 20th century. He developed teaching machine and program learning.

After that Hillgard developed theories of learning and instruction for educational field. All these type of above studies centralized on analysis of content, intelligences, the process of program learning, evaluation of teaching product and behavioral correction.
In 19th century many psychologists have identified multi level thinking process, such as problem solving, concept attainment, imaginative and creative thinking and decision-making. But all these wide varieties of cognitive abilities can be more described as sharing a common psychological domain. For about a century, there has been a succession of very competent psychologist such as Galton, Spearman, Burt, Thorndike, Guilford who have contributed to our understanding of mental abilities.

"In traditional education, the teacher is responsible for the students' learning. Teacher's typical lecture to students in which students write notes and then memorize and recall the material to perform well in examinations. This type of learning environment is not appropriate for higher grade students who bring life skills and increased reasoning ability to the classroom. In such a situation, it may be appropriate for students to take responsibility for their own education." (Leutner, 1993)

"Student acquisition of higher order thinking skill is now a national goal. In a world in which technology is changing rapidly, workers need to think and solve problem." (The National Education Association Research division, 1994)

A primary objective of today's teacher is to prepare students for the world of tomorrow. If students are to be competitive in the year to come, faculties need to be able to provide their students with the cognitive strategies that will enable them to think critically.

The purpose of this study is to measure critical thinking of students and thus we know that where should they stand in world of today and prepare them for world of tomorrow. For this the investigator has decided to construct and standardized critical thinking test for secondary school students.
1.2 IMPORTANCE OF THE STUDY

Some time it is easy for students to say that something is good or bad, right or wrong, fair or unfair and so on. But it is not always easy for students to say that why this thing is good or bad and so on. Students need to have reason to support their answer. For this students have to think to give their answer. There are many thinking skill like creative thinking, analytical thinking, critical thinking and so on. But out of them investigator has selected critical thinking skill. The importance of critical thinking is given below.

◊ All actions, decisions, and judgments spring from assumptions - they are checked by student and will make strong decisions and right judgments by this thinking.

◊ In personal relationships we learn to keep our lines of communications open-we avoid uncritically reproducing patterns of the modeled interactions we learned from our parental interaction.

◊ Promoting interaction among students as they learn - Learning in a group setting often helps each member to achieve more.

◊ All education consists of transmitting to students 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 understand and evaluate it properly. This second ability is enhancing by critical thinking.

◊ Text books grew larger and curricula became more concentrated, students were expected to memorize and learn increasingly more material. Acquisition of scientific facts and information took precedence over learning scientific methods and concepts. The task of transmitting the methods of correct investigation, understanding, and evaluation of all scientific data is so difficult but by this skill students complete their work very easily.
Up to now no work has been done in thinking skills especially in critical thinking. Critical thinking is equally important for students to understand and evaluate subject matter. As there is no critical thinking test available in Gujarati to measure critical thinking, the investigator has taken up this study.

1.3 STATEMENT OF THE PROBLEM

The title of the present study is:

CONSTRUCTION AND STANDARDIZATION OF CRITICAL THINKING TEST FOR SECONDARY SCHOOL STUDENTS OF GUJARAT.

Thus this study conducted to develop and standardize critical thinking test to measure the critical thinking of the secondary school students.

In order to avoid the confusion and misunderstanding about the terms involved in the statement of the problem, it is essential for the investigator to clarify the terms in the statement of the problem. They are as follows:

(1) Construction
(2) Standardization
(3) Critical thinking
(4) Secondary School Students

➢ Clarification of the Important Terms

(1) Construction

Construction means the act of process of constructing. The way in which something is built or put together.

In the present study, construction means to construct the items for the test. For that investigator has accepted the concept from ‘Teaching Your Children to Think’ book written by John Langrehr. The construction of item is based on test given in this book.
(2) Standardization

The word “standardized” in standardized test refers to the condition under which the test is taken, such as directions that are read, the way answers are recorded and the tools that students may use. All students who take a standardized test do so in equivalent standardized environments. In that way, a standardized test is designed to give a fair measure of students’ performance.

This is a statistical term and it implies that the same items be presented to each test taker and that there should be rules specified for administering and scoring the test. This includes fixation of norms, establishing reliability and validity.

(3) Critical thinking

Critical thinking means correct thinking in the pursuit of relevant and reliable knowledge about the world. Further clarification of critical thinking is given in chapter II.

For the present study critical thinking means the score obtain by the students in the critical thinking test constructed and standardized by the investigator.

(4) Secondary School Students

In Gujarat state, education system is divided into three parts (i) Primary (ii) Secondary (iii) Higher Secondary. Primary section includes Grade I to VII, Secondary section includes Grade VIII to X and Higher Secondary section includes Grade XI and XII. In Gujarat children usually take admission in Grade I of primary section at the age of five.

Since investigator has collected the data in the academic year 2009-10, at that time Grade VIII was in secondary section.

So in the present study secondary school students means who are studying in Grade VIII to X in academic year of 2009-10.
1.4 OBJECTIVES OF THE STUDY

An objective is broader in scope than a goal and are basic tools that underlying all planning and strategic activities. They serve as the basis for policy and evidence or phenomenon instead of belief or opinion.

"An objective is an end-view of the possible achievement."
(H.O.Joshi, 1997)

The present study aimed to construct and standardize critical thinking test for secondary school students. The major objectives of the study are as under:

1. To construct the critical thinking test for secondary school students of Gujarat
2. To standardized the critical thinking test for secondary school students of Gujarat
3. To study the critical thinking of secondary school students in relation to Gender.
4. To study the critical thinking of secondary school students in relation to Area.
5. To study the critical thinking of secondary school students in relation to Grade.
6. To study the critical thinking of secondary school students in relation to Age.
7. To study the critical thinking of secondary school students in relation to Anxiety.

1.5 VARIABLES OF THE STUDY

The investigator decided to take the following variables:
1.5.1 INDEPENDENT VARIABLES:
The independent variables with level are as follows:

- Gender
  - Boys
  - Girls

- Grade
  - VIII
  - IX
  - X

- Anxiety
  - High
  - Low

- Area
  - Urban
  - Rural

1.5.2 DEPENDENT VARIABLES:
The dependent variable in this study is critical thinking.

1.6 HYPOTHESES OF THE STUDY
A researcher takes up a research with a view to solve a particular problem. When the researcher looks into the direction of solving a problem he finds not one but many ways to reach the solution of a problem. Now if he tries each of the possible direction to make out which would be the best to solve a problem, then there would be a lot of wastage of time as well as effort. To avoid this trial and error method, the researcher simply analyses all the possible ways and derives the best one of them, the best and theoretical sound alternative. This sound alternative is nothing else but the hypotheses of research. The Hypothesis focuses the investigation on a define target and determines what observations or measures are to be used.
The hypotheses of the study are as follows:

1. There is no significant difference in the mean score of critical thinking between boys and girls of secondary school.

2. There is no significant difference in the mean score of critical thinking of secondary school students belonging to urban and rural areas.

3. There is no significant difference in the mean score of critical thinking between urban and rural boys.

4. There is no significant difference in the mean score of critical thinking between urban and rural girls.

5. There is no significant difference in the mean score of critical thinking between different grade levels of secondary school students.

6. There is no significant difference in the mean score of critical thinking between different age groups of secondary school students.

7. There is no significant difference in the mean score of critical thinking between different anxiety levels of secondary school students.

1.6 DELIMITATIONS OF THE STUDY

Even with specific objectives of the study, there are some limitations in every research study. This study has also the limitations which are restricted in a particular way. They are as follows:

- This study is limited only for secondary school students of Gujarat.
- This study is limited only for 12 to 16 years old students.
- This study is limited only for students who were studying in Gujarati medium.
1.8 SCHEME OF CHAPTERIZATION

The entire report of the present study is divided into nine chapters. A concise explanation of the remaining chapters is given here with a view to acquainting the reader with the treatment of the subject under consideration.

CHAPTER 2: THEORETICAL ORIENTATION

The second chapter concerns with theoretical orientation of critical thinking. It includes the definition, concept of critical thinking, characteristics of critical thinkers, principles of critical thinking and components of critical thinking.

CHAPTER 3: REVIEW OF RELATED RESEARCHES

This third chapter deals with the review of the past studies which allow the investigator to have proper perspectives. The investigator reviewed the past researches done in the critical thinking and its related factors.

CHAPTER 4: TEST DESIGN AND PROCEDURE

The fourth chapter describes the method selected for the study, population, sample and method of data collection and methods of data analysis.

CHAPTER 5: DEVELOPMENT OF THE TEST

The fifth chapter deals with construction of the tool i.e. constructing the test items, manuscript try out, pre-pilot, pilot and final-run of the test. It also includes the complete description of the procedure and criteria for selecting the items for the final form of the test.

CHAPTER 6: FIXATION OF NORMS FOR THE TEST

This chapter consists of establishment of norms of the present test and the various methods used to establish norms.

CHAPTER 7: RELIABILITY AND VALIDITY OF THE TEST

This chapter includes the description of the various methods used for estimating reliability and validity.
CHAPTER 8: CORRELATED STUDIES ON CRITICAL THINKING

This chapter deals with the related study which include study of mean score of critical thinking in relation to gender, area, age, grade and anxiety levels.

CHAPTER 9: REVIEW, CONCLUSIONS AND SUGGESTIONS

The last chapter contains the summary of research work, conclusions about results, major findings and suggestion for future research work.