I N D E X

1.0 INTRODUCTION :

Education makes the mankind literate in ethics and moral values. If we have a well natured and balanced education system, the half of the task of the country's development is done. Education pays extremely significant role in the lives of individuals by empowering them with various abilities, skills, competencies and thus paying way for enhancing the quality of life. Today as we know schools face problems related to discipline, behavioral and personal issues. Education is the ability to meet life's situation. It is a character building process, enhancing one's personality. Attitudes constitute one aspect of an individual's personality.

The concept of attitude, like that of personality, is not easy to define precisely. Attitudes result from our tendency to reach conclusions on the basis of specific experiences. This ability to generalize is very useful. It is largely responsible for our intellectual development. Without it, all that we learn and know would be specific and, hence, limited in use. It gives us laws of science, ethics, and of government. It also gives us attitudes, biases, and misconceptions.

Other attitudes develop as cognitive generalizations. Cognitive attitudes closely resemble knowledge. The chief difference between them is in how universally they are accepted, or how easily they can be shown to be true. What we believe is made up of our knowledge and our attitudes. Those propositions that most informed people regard as true constitute knowledge. Those on which significant differences of opinion exist we term attitudes. In other words, attitudes are personal beliefs.

The cultivation of various presumably desirable attitudes is frequently mentioned as an educational objective. Yet teachers and

schools seldom have a systematic program for the attainment of such objectives have been achieved. A well-established attitude is very difficult to dislodge. Seldom can one person induce another to change an attitude, however ill-founded it may seem. If a change comes and attitudes do change it is likely to be as a result of a voluntary, internal decision. If evidence against an attitude accumulates, or if clinging to it penalties, The holder may gradually soften and ultimately reverse it.

Beyond question, schooling does lead to attitude changes. Many of these changes are results of the acquisition of new knowledge that calls old attitudes into question. Many are the results of conditioning. For example, a teacher who radiates enthusiasm for his/her subject and also demonstrates a genuine interest in students as individuals will probably foster an enduringly favorable attitude toward that field of study. On the other hand, a poor managed school may condition students to dislike the whole process of schooling education.

Regardless of how attitudes are changed, it seems very doubtful that a teacher or a school should set out deliberately to inculcate certain system of belief. It seems even more doubtful that an institution designed for the educational of a free people should use techniques of conditioning to inculcate the attitudes it approves. Clearly, attitudes accepted as a result of conditioning have not been freely chosen on their merits, as those of a member of a free society ought to be.

What this means is that a teacher or a school should not make the cultivation of a particular set of attitudes one of its explicitly stated and publicly announced primary objectives. Inevitably good teachers will have personal attitudes that they believe to be both

good and true. Inevitably these attitudes will affect they knowledge the choose teach and perhaps in even their manner of teaching. Inevitably these and other attitude will get talked about in good class discussion. The teacher's attitude will not remain hidden from the students.

Such a procedure is not only the educationally ethical one it is also likely to be most effective pedagogically from attack on other people's attitudes is likely only to strengthen their commitment to them. But if attitudes are recognized as theirs to hold or to change, if they are challenged to examine their attitudes critically that is, in the light of relevant knowledge, if resources relevant to them are increased, they may find personal satisfaction in adopting new attitudes. Attitude modification by indirection is probably the best strategy.

Thus it is very clear that education is a process of bringing about a desirable change in student's knowledge, behavior, skills attitude, values and aspiration. The educational institutions are psychological unit where person to person interaction between the teacher and the taught is a major factor in student's education. Basically the education may be regarded as the influence exerted by more experienced personalities upon the comparatively less mature and less experienced but growing personalities of students.

Attitudes have noteworthy self-sustaining and reinforcing property. Once they arrive at an emotional feeling or the cognitive generalization about it, further experience is more likely to support than weaken it. This is because human beings tend to observe and to remember selectively. They notice and believe incidents that support the correctness of their attitudes and ignore or discredit incidents that seem to call the attitudes into question. The vulnerability of a

person's attitudes, the fact that they are not universally believed or easily shown to be true, makes one who holds them use every opportunity to strengthen and defend them.

So the study of attitudes and their measurement, change in attitudes and their relationship with other variables have been a very important area of research in psychology and education. The perception of objects and choice and choice of subjects as well as education stream and such other behaviors of human being are also determined by the students attitudes. Thats why researcher has chosen this topic of attitude scaling.

2.0 STATEMENT OF THE PROBLEM:

(The statement of the present study was verbalized as below. ***"A study of attitudes of 12th Standard Commerce students towards the subject of statistics."***)

In the present study, 1) An attitude scale was developed by the researcher. 2) study presents the 12th standard commerce students attitudes towards statistics in the context of gender, types of area, types of school, educational achievement, medium of learning and, parent's education, 3) The students of Rajkot city during the year 2013-14 in schools affiliated to Gujarat Higher Secondary Education Board were selected for the sample. 4) Collected data from the sample were analyzed by using appropriate statistical techniques and some conclusions were derived.

3.0 OBJECTIVES OF THE STUDY:

The present research scrutinized following objectives :
1)   To develop an attitude scale to know 12th Standard Student's attitudes towards the statistics.
2)   To standardize an attitude scale.

3)   To study the effect of variables of gender, types of area, types of school, educational achievement, medium of learning and parent's education.

4.0   VARIABLES INVOLVED IN THE   STUDY:

A variable is defined as a quantity susceptible of fluctuation or change in value or magnitude under different conditions.

The present study involves the following variables as per table 1.1

TABLE : 1.1

VARIABLES OF THE STUDY

Sr. No.	Name of variable	Type of variable	Level	Details
1	Gender	Independent	2	Boys/Girls
2	Area	Independent	2	Rural/Urban
3	Medium of learning	Independent	2	Gujarati/English
4	Types of school	Independent	3	Government/Granted/ Self-Finance
5	Educational achievement	Independent	3	Higher level Medium level Lower level
6	Parent's education	Independent	3	Il-literacy High-literacy Lower-literacy
7	Attitudes towards statistics	dependent	---	-----------

5.0 HYPOTHESES OF THE STUDY:

"The hypothesis is a researcher's tentative explanation or professional opinion predicting the main results of the research process." Supported by theory, research or personal experience, it states the predicted results from the variables presented in the purpose statement. The hypothesis presents a predicted outcome between two measures. [2]

In the present study, the following hypotheses were formulated for testing.

5.1 In the contest of the gender :

No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between boys and girls students of 12th commerce.

5.2 In the context of type of schools :

No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between government and granted schools students of 12th commerce.

No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between government and self finance schools students of 12th commerce.

No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between granted and self-finance schools students of 12th commerce.

5.3 In the context of medium of learning :

No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between Gujarati medium and English Medium students of 12th commerce.

5.4 In the context of area:

No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between rural and urban area's students of 12th commerce.

5.5 In the context of educational achievement:

No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between higher level of educational achievement and middle level of educational achievement of students of 12th commerce.

No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between higher level of educational achievement and lower level of educational achievement of students of 12th commerce.

No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between middle level of educational achievement and lower level of educational achievement of students of 12th commerce.

5.6 IN THE CONTEXT OF LITERACY OF PARENTS :
5.6.1 In the context of literacy of father :

No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between ill-literacy and high-literacy of father of students of 12th commerce.

No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between ill-literacy and less-literacy of father of students of 12th commerce.

No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between high-literacy and less-literacy of father of students of 12th commerce.

5.6.2 In the context of literacy of mother:

No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between ill-literacy and high-literacy of mother of students of 12th commerce.

No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between Il-literacy and less-literacy of mother of students of 12th commerce.

No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between high-literacy and less-literacy of mother of students of 12th commerce.

6.0   OPERATIONAL DEFINITIONS OF KEY WORDS :

6.1 Attitude :

Attitude is normally understood as feeling or opinion towards something. It involves liking or disliking, love or hatred, beliefs or disbeliefs of an idea towards an object of an individual or group of individual.

Here for the present study attitude means the favorableness or unfavorableness expressed by the students towards statistics on the reliable and valid attitude scale constructed by researcher.

6.2 Students of 12th commerce

The students who study at higher secondary level under Gujarat higher secondary education board in second year.

6.3 Educational achievement

Student's result of 11th standard would be taken into consideration as Educational achievement.

6.4 Statistics

A subject which has to learn the students of 11th and 12th commerce faculty student under Gujarat higher secondary education board, Gandhinagar.

6.5 Medium of learning

The language in which they take thier formal education. Here, either in Gujarati or in English

6.6 Literacy of Students parents :

6.1 Il-literacy of parents :

Who don't take their formal education of school.

6.2 Less-literacy of parents

Less-literacy means who take their formal education upto 12th standard.

6.3 High-literacy of parents

High literacy means who take their formal education upto post graduation level.

7.0 AREA OF RESEARCH :

According to oxford dictionary area means 'scope, range; field of study.'

In the present study standardized attitude scale was constructed for higher secondary school going students. It is to be noted that attitude scales are designed to know students like or dislike towards the subjects.

Thus in present study attitude scale was constructed under area of educational assessment and evaluation with the view point of usage of test for guidance and counseling. So present study likely to consider in research area of : psychology of education.

8.0 TYPE OF RESEARCH :

Present study was conducted to evaluate attitude of higher secondary students by construction of standardized scale, present research will classified in to applied research type.

In present study researcher developed the scale which answers what is attitude of higher secondary school students. Steps followed in research clearly identify it as survey. Thus type of present research is called survey type descriptive research.

9.0 SCOPE OF THE STUDY :

Scope means range or extent of ability, so scope of study means up to which extent present study able to answer. For the present research scope of the study stated as,

1: Present study was ranged for students studying in Gujarati Medium and English medium higher secondary schools of Gujarat state conducting syllabus by Gujarat Higher secondary education board, Gandhinagar.

2: The results of this study only restricted Rajkot city.

3: Attitude scale was constructed by Likert method.

4:      The students of Rajkot city who study during the year 2013-2014 in 12th commerce were selected as sample.

10.0 IMPORTANCE OF THE STUDY:

Attitudes are measurable, and they can be changed through skillful teaching. The measurement of attitudes has been experimented with for a number of years, and a variety of scales for measuring attitudes has been developed. Attitude of students towards particular subject affects achievement of students in particular subject. Since attitudes are so obviously important in determining behaviour of students. It is also important to know students likes and dislikes towards particular subjects. So teachers can decide how to teach them by using proper teaching methods.

The researcher believes that the present study would throw light on the following :

1:      The results of present study will help teachers and principals of different schools.
2:      The present study will provide a standardize tool to measure students attitudes towards an important subject like statistics.
3:      Present study will help parents to know their children's attitude towards statistics.
4:      The study would also guide in the matter of changing attitudes of students for enhancing achievement.
5:      It would help the researchers and the people interested to know how much effect does gender, area, types of school, medium of learning, education of parents and educational achievement have on their attitudes towards statistics.

6:      The present study will help the schools to take necessary actions to improve their attitudes towards this important subject.

11.0 LIMITATIONS OF STUDY :

Limitations of the present study were as follow :

1:      In present study only the students of Rajkot city were included.

2:      Schools for replication stages were selected purposively.

3:      At the time of taking students response only present students responses were taking into consideration. No efforts were being made to take response from absent students.

4:      It is survey type of research, so limitations of survey type research are also affect this research.

5:      In present study only the students of 12th standard commerce were included.

6:      The interpretations are held to be valid and reliable to the extent of the reliability and validity of the tools employed in measuring the student's attitude towards statistics.

7:      A translated attitude scale is used for English medium students.

12.0 FUNCTIONAL OUTLINE OF THE STUDY:

-      The whole work was carried out in following sequence.

-      Determination of objectives.

-      Formation of hypotheses in accordance with objectives.

-      Tool Selection

-      Analysis of the content and study of related literature.

-      Research tool as per Likert Method

-      Sample was selected.

-      Administration for tool was conducted.

-      The analysis was conducted on gathered data.

-      The obtained results were interpreted.

-    Appropriate implications were prepared.

13.0 POPULATION :

The term 'Universe' refers to the total of the items or units in any field in inquiry, whereas the term 'population' refers to the total of items about which information is described.

In the study target population was Gujarati Medium and English Medium students of Standard 12th Commerce in the Higher Secondary Schools of Rajkot.

Thus the population of the study was the students of standard 12th Commerce Gujarati and English Medium schools during 2013-2014 in the Rajkot city, Gujarat.

14.0   SELECTION OF PRESENT SAMPLE :

For the present investigation the procedure adopted for the selection of sample was stratified clustered sampling. This technique resembles the stratified sampling method to a large extent.

The investigator had to be careful about the stratification, as gender group-boys and girls area group-urban and rural, medium of learning group- English and Gujarati, types of school government, granted and self finance for 12th standard commerce students.

Sample of Pre Piloting :

In this survey research for the purpose of pre-piloting 25 students of Shri Venilal Kalyani Vidyalaya, Jasdan was selected.

Sample of Pre Piloting :

In this study for the purpose of piloting 35 boys and 35 girls were selected from the Shri K.V.M. School, Jasdan and Vivekanand Vidyalaya, Jasdan.

The students of Rajkot city's 25 schools were selected for data collection by randomly and perposively.

15.0 DEVELOPMENT OF RESEARCH TOOLS :

1)   Collect statements

2)   Judge direction

3)   Discard neutral (or unable to judge) statement

4)   Format items to measure intensity.

5)   Pre-pilot test

6)   Pilot test

7)   Validating of tool

16.0 COMPUTATION OF DATA :

There are two main purposes of the study, first is to find out the present status of the concerned variables in the students, second is to determine the relationship between the dependent and independent variables. For this the following statistical calculations were done :

The data was complied in tabular form for each variable and analyzed to see the number of students falling below and above the mean scores of each variable. This was done by placing the data in frequency table. 't' values were computed to find out the significance difference if any, in gender wise, area wise, medium wise, parents education wise, type of school wise and educational achievement wise h of each variable. Similarly the relationship between the variables were determined by the coefficient of correlations. Regression analysis technique was employed to formulate regression equations for the prediction of attitude.

17.0 METHODS OF ANALYSIS :

Microsoft Excel and SPSS are used for data analysis.

18.0   FINDINGS :

Findings regarding Gender :

Gender difference is observed. The attitude score of girls is different significantly from the attitude score of boys. Surprisingly the attitude of girls is more favorable towards statistics than boys.

Findings regarding Medium of learning :

Medium difference is observed. Through there is no high difference between mean score of Gujarati and English medium students. We can slightly observe difference towards attitude of Gujarati and English medium students. Attitude of Gujarati medium students is more favorable than English medium students.

Findings regarding area :

Area difference is not observed. There is no significant difference between mean score of rural and urban area students. So we can say that attitude of both rural and urban area is same.

Findings regarding type of schools :

Findings regarding Government and Granted School:

Type of schools affects the students attitude towards statistics. Attitude of granted school's students is more favorable than government school.

Findings regarding Granted and private school:

Type of schools affects the student's attitude towards statistics attitude of private school's students is more favorable than granted school students.

Findings regarding Educational achievement :

Type of schools affects the student's attitude towards statistics. Attitude of private school's students is more favorable than government school students.

Finding regarding Educational achievement :
Findings regarding High-level and middle level educational achievement of students :

Level of educational achievement affects attitude towards statistics. There is significance difference between mean score of high-level and middle level educational achievement of the students. This research indicates more favorable attitude towards statistics of high level educational achievement holder student than middle level educational achievement holder students.

Findings regarding High-level and lower-level educational achievement of students :

Level of educational achievement affects attitude towards statistics. There is significance difference between mean score of high-level and lower level educational achievement of the students. This research indicates more favorable attitude towards statistics of high level educational achievement holder students than lower level educational achievement holder students.

Findings regarding lower level and middle level educational achievement of students :

Level of Educational achievement affect attitude toward statistics. There is significance difference between mean score of lower-level and middle level educational achievement of the students. This research indicate more favorable attitude towards statistics of middle level educational achievement holder students than lower level educational achievement holder students.

Findings regarding student's father's education:

Findings regarding students father's Il-literacy and less-literacy :

Education of student's father deeply affects student's attitude towards statistics. This study indicates more favorable attitude towards statistics of students whose father is less-literate than whose father is ill-literate.

Findings regarding student's father's high-literacy and less-literacy :

Education of student's father deeply affects student's attitude towards statistics. This study indicates more favorable attitude towards statistics of students whose father is high-literate than whose father is less-literate.

Findings regarding student's father high-literacy and Il-literacy :

Education of student's father deeply affects student's attitude towards statistics. This study indicates more favorable attitude towards statistics of students whose father is high-literate than whose father is Il-literate.

Findings regarding student's mother's education :

Findings regarding student's mother Il-literacy and less-literacy :

Educations of student's mother deeply affects student's attitude toward statistics. This study indicates more favorable attitude towards statistics of students whose mother is less-literate than whose mother is Il-literate.

Findings regarding student's mother's high-literacy and less-literacy:

Education of student's mother deeply affects student's attitude towards statistics. This study indicates more favorable attitude towards statistics of students whose mother is high-literate than whose mother is less-literate.

Findings regarding student's mother's high-literacy and ill - literacy:

Education of student's father deeply affect student's attitude towards statistics. This study indicates more favorable attitude towards statistics of students whose mother is high-literate than whose mother is ill-literate.

19.0 RECOMMENDATIONS :

Every research gives something new result to the society in general and the concerned in particular. The present research is related to attitude measurement of an important subject statistics. Recommendations to the society are as under.

School :

School and particularly teachers are playing very important role in developing student's attitude to a subject. The findings of the present research shows that variables like gender, area, medium, type of schools3, parent's education and educational achievement affect students attitude towards. So the schools have to conduct such programmes as would help in developing favorable attitude towards subjects.

Parents :

Students are the first member of a family of school. To develop favorable attitude towards statistics and to help the students achieve

higher in statistics subject the parents should be aware, and make conscious attempt under the guidance of the school staff. The difference in the attitude and achievement of boys and girls also reveals the attitude of the parents towards their children. So they should be just, provide fair chances of progress to the child too.

Education Planners :

This study also helps educational planners how to make an effective programme to make students attitude favorable towards this particular subject. This study will add to their data. They should discuss with the teachers, concerned authority and make necessary changes. The teaching of statistics should occupy an important place in bringing a change in the attitude towards statistics. The educational planners must think about it.

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