

CHAPTER NO. : 6
: SUMMARY, FINDINGS
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CHAPTER NO. : 6

: SUMMARY, FINDINGS AND RECOMMENDATIONS

6.1 INTRODUCTION :

The detailed Report of the present study has been given in the previous chapters. In the present chapter the summary of the report has been presented along with the outlines. It is accompanied by the findings, the educational implications and the recommendations in these areas for prospective researches.

6.2 SUMMARY OF RESEARCH :

6.2.1 Subject:

The summary with outlines of the whole study is given under :

Selecting, defining and delimiting the problem. "To measure "Attitude towards statistics of 12th standard commerce students as per Likert Method." after selecting this problem, the key words have been defined, the objectives have been set, the variables have been decided, the area and type of research have been set, the hypotheses have been formulated, the significance have been worded and the delimitations of the study have been recognized.

6.2.2 Objectives of the study :

The present research scrutinized following objectives.

- 1) To develop an attitude scale to know 12th Standard commerce students 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 parents education.

6.2.3 Review of related literature :

This chapter has the details of related literature for the present study. The chapter is divided into two broad sections 1) Theoretical discussion and 2) Review of related literature. In theoretical discussion detail discussion of subject and attitude is presented, while in Review of related literature, the past research studies carried out in the similar areas have been studied. Critical research studies carried out in the similar areas have been studied. Critical review of the past studies as compare to the present study has also been done.

6.2.4 Determination of population :

The students of Higher Secondary Schools which are affiliated to Gujarat Higher Secondary Education Board Gandhinagar of Gujarati and English medium are taking into consideration as population of the present study. The students of 12th standard Commerce are selected as population.

6.2.5 Selected Sample :

The Higher secondary schools of Rajkot city is selected as sample in present research. Government, granted and private schools of both Gujarati and English medium are taking into consideration as a sample of study.

6.2.6 Tools used :

For this study no suitable readymade tool or scale was available. So the researcher developed an attitude scale to measure

attitude towards Statistics. The procedure of tools construction is discussed in Chapter-4.

6.2.7 Collection of data :

The self developed tool was administered to the sample selected. The attitude was score with the help of scoring key and the data was categorized.

6.2.8 Analysis of data :

The data were compiled in tabular form for each variable. The data was placed in frequency tables and further analysis was done on the basis of 't' values. The significance of differences was analysed for each sub sample. Similarly the relationship between the variables was determined for the sample and sub samples using appropriate statistical analysis. The regression technique was used to predict the attitude. The whole analysis has been done by SPSS programme.

6.2.9 Testing of Hypotheses :

The tested hypotheses are shown in Table 6.1

TABLE: 6.1

Tested Hypotheses and their Significance

Sr. No.	Hypothesis	C.R.	Significance Level
1	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.	4.109	0.01
2	No significant difference will be obtained in the mean score of attitudes towards the subject of statistics	0.875	Not Significant

	between Gujarati medium and English medium students of 12th commerce.		
3	No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between rural and urban areas students of 12th commerce.	1.873	0.05
4	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	8.529	0.01
5	No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between granted and private schools students of 12th commerce	6.250	0.01
6	No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between government and private schools students of 12th commerce	34.921	0.01
7	No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between high level of educational achievement and Lower level of educational achievement of students of 12th commerce.	8.795	0.01

8	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.	4.136	0.01
9	No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between lower level of educational achievement and middle level of educational achievement of students of 12th commerce.	7.863	0.01
10	No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between Il-literacy and high literacy of students of 12th commerce.	7.863	0.01
11	No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between Il-literacy and less-literacy of students father .	1.782	0.05
12	No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between less-literacy and high-literacy of students' father.	10.870	0.01

13	No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between less-literacy and ill-literacy of student's mother.	6.123	0.01
14	No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between less-literacy and high-literacy of student's mother.	6.123	0.01
15	No significant difference will be obtained in the mean score of attitudes towards the subject of statistics between Il-literacy and high-literacy of student's mother.	6.582	0.01

6.3 FINDINGS :

6.3.1 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.

6.3.2 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.

6.3.3 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.

6.3.4 Findings regarding type of schools :

6.3.4.1 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.

6.3.4.2 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.

6.3.4.3 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.

6.3.5 Finding regarding Educational achievement :

6.3.5.1 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.

6.3.5.2 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.

6.3.5.3 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.

6.3.6 Findings regarding student's father's education:

6.3.6.1 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.

6.3.6.2 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.

6.3.6.3. 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.

6.3.7 Findings regarding student's mother's education :

6.3.7.1 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.

6.3.7.2 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.

6.3.7.3 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.

6.4 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.

6.5 SUGGESTIONS FOR FURTHER RESEARCH:

Research is a continuous unending process. Every research generates new areas for further researches. Following is the list of

some major areas for further researches that may be conducted in the relevant fields.

- ñ Studies may be conducted to identify the role of teachers, and society in the formation of attitude towards the subject of statistics.
- ñ Study on subjects other than statistics like account, business management etc.
- ñ Studies may be taken in the same area on experimental basis.
- ñ Study may be taken on 11th standard commerce students.
- ñ Study may be taken on science stream students.
- ñ Study may be taken on college students, post graduation level students of commerce and science stream.
- ñ Study may be taken on students of other city except Rajkot.
- ñ Studies regarding difference in attitude towards different subjects may be conducted.

This is a tentative list of some further research problems and by no means an exhaustive list. The present research which is perhaps the first and only available study regarding statistics. It is hoped that the researchers in future shall be encouraged to undertake follow up work in this area to improve the students attitudes.

:BIBLIOGRAPHY :

ñBOOKS

- Julia Eliot,(2001), Oxford dictionary & thesaurus Oxford University Press, New York
- Ritu Sharma, (2007), Educational Research and statistics, Alpha Publications, Daryaganj
- John A. Green, (1970), Introduction to measurement and evaluation, Dodd, Mead & Company, New York
- Robert L. Eblel and David A. Frisbie, (1986), Essentials of Educational Measurement, Prentice Hall of India Pvt. Ltd., New Jersey, (Fourth Edition)
- B. Asthana and R.N. Agarwal, (1982), Measurement and Evaluation in psychology and education, Vinod Pustak Mandir, Agra-2.
- Rensis Likert, (1932) A technique for the measurement of attitudes, Archives of Psychology,
- J.W. Best, (1963), *Research in Education*, Prentice Hall of India Pvt. Ltd., N.Delhi,(3rd Edition)
- Walter R. Brog.,(1963), *Educational Research, An Introduction*, Longman, Green and Co. Ltd.,London, (4th Edition)
- C.W.Harris, (1960), Encyclopedia of Educational Research, The Mac Millan Company, New York.
- U. Parekh and T.V. Rao, (1974),Hand Books of Psychological Social Instruments, Samashti, Ahmedabad
- M.R. Loree, (1971),Shaping Teachers Attitude, In B.O. Smith (Ed.) Research in Teacher Education: Asymposium, Prentice Hall Inc., Englewood Cliffs, New Jersey.
- C.W. Fisher, et. al.,(1979),Beginning Teacher Evaluation study, (BTES), (Technical Report Series, Technical Report V-

I), for West Laboratory for Educational Research and Development ,San Francisco

K.B. Powar, (2002), University News, A weekly journal of Higher Education, Vol. 40, No. 28, July 15-21, Association of Indian Uni.

A. Donald, L. Cheser and A. Razavieh,(1972), Introduction to research in education, Holt Rinechart and Winston, New York, (First Edition,

L.R. Gay,(1987), Educational Research: competencies for analysis and application, Merrill publishing company, chio,

Anastari,(1988), Psychological Testing. mcmillan and company, N.Delhi

H.E. Garnet,(1967), statistics in pshychology and education Vakils Feffer and Simond Ltd., Bombay,

Anil Ambasana,(2008), A visual guide to SPSS for windosws, (Revised Edition), Saurashtra University, Rajkot

A.M. Jordan, (1953), Measurement in education, Mccraw Hill Book Co., New York, p.32

Ambasana Anil (1998), *Computer in Research and Education*, Rajkot, Saurashtra University

Mehrotra L.P., *Introduction to Psychological Testing*, Allhabad Research and Statistical Management

ñTEXT BOOKS

_____, (2013), Psychology Text Book of Standard 12th Arts, Gujarat Higher Secondary Text Book Mandal, Gandhinagar.

_____, (2013), Statistics Text Book of Standard 12th Commerce, Gujarat Higher Secondary Text Book Mandal, Gandhinagar.

ñUNPUBLISHED LITERATURE

R.Mishra, (1978), *A Study of Attitude towards Mathematics of Secondary Schools Students*, Patna University.

C.L. Anand and M.A. Sudhirkumar, (1981), *Development and Standardization of Modernity Attitude Scale*, NEHRU.

H.D. Badami, (1973), *A scale for Measuring Attitudes of College Students towards Education*, School of Phil., Psy. and Edu. Gujarat University.

P.R. Nayar, (1977), *Mysore Teacher Attitude Scales*, Dept. of Edu., Mysore University.

N. N. Shrivastava, (1980), *A Study of the Scientific Attitude and its Measurement*, Ph.D., Edu., Patna University.

S.P. Kohle, (1985), *Construction of Attitude Scales and Measurement of Attitudes of Students of Jalgaon District towards Mathematics*, PH.D., Edu., Poona University.

K.M.Bhandarkar, (1983), *A Study of Population Education Knowledge and Attitudes of Secondary School Students and Teachers*, Ph.D., Edu., Bhopal University.

H.G. Sattarwala, (1981), *Trying out a Strategy of Bringing about Attitudinal Changes in the Context of Population Education*, Ph.D., Edu., South Gujarat University

G.S. Adhikari, (1981), *A Study of Attitude towards National Defence and Social Values as Resultant of Socio-Economic Status and Sex*, Ph.D., Psychology, Kum.University

A. Ahmed, (1965), *Factors in the Attitude Formation towards Democracy*, Ph.D., Psychology, A.M. University

J.H. Pancholi, (19963-2000), *An Investigation into the effect to teacher's effectiveness, teacher's responsibility and experience of teachers on professional attitude of teachers*, Anart: Journal of North Gujarat University, Vol.7

M.C. Nandani,(1991), *A Study of the Value, Adjustment, Attitude towards Teaching Profession and Academic Achievement of Teacher's Children as compared to Non-Teachers' Children* Ph.D., Sau. University

M.R. Tuli, (1979), *Mathematical Creativity as related to Aptitude for Achievement in and Attitude towards Mathematics*, Ph.D., Edu., Punjab University

S. Ghosh, (1986), *A Critical Study of Scientific Attitude and Aptitude of the Students and Determination of some Determinates of Scientific Aptitude*, Ph.D., Kal. University

Damyanti Pandey, (1997), *General teaching Competency and Attitude of Economics Teachers and their Relationship with Student Morale and Student Achievement in Government Schools of Delhi*, Ph.D., Thesis (Published), Classical Publishing Company, New Delhi.

S. Rajesekar, (2001), *Higher Secondary Student's Achievement in Physics as Related to their Attitude towards the study of Physics*, *Journal of All India Association for Educational Research*, Vol 13,Nos3 3 and 4

J. Bandyopadhyay, (1984), *Environmental Influence, Academic Achievement and Scientific Aptitude as Determinants of Adolescents Attitude towards Science Stream*, Ph.D., Calcutta University

A. K. Saxena,(1985), *Attitude towards Physics and Cognitive Preference styles among Different Groups of Science Students*, Ph.D., Edu., Rajasthan University

P.V. Buddhdev,(1989), *To Study the Attitude of Secondary School Students towards various School Subjects*,Ph.D., Sau. University

Pravina V. Buddhdev, (1992),*Contribution of Cognitive and Affective Variables in Prediction of Achievement in Mathematics of Grade X Students, Research Paper ASC*, Sau. University

B.V.Vachharajani,(1988), To study the impact of self instructional material on sex education on adjustment neuroticism and attitude towards sex of high school students, Ph.D., Edu., Saurashtra University.

P.K. Suwimon, (1984), To study parent's attitude towards the school programmes in central Thailand, Ph.D. Edu., Vir Narmad University University.

G.N.Chaudhary, (2003), To study attitudes teachers, parents and educational administrators of Mehsana and Patan District towards introducing English from grade I to IV of Primary Education Ph.D., Vir Narmad University, Surat.

Namrata K. Patel, (2012), A study of attitudes of Standard 8th students towards mathematics, Research Paper KCG, Gandhinagar.

Dilip K. Raval, (2002), A comparative study of the academic achivement and attitude towards English

subject of students standard 8th studying English from standard 1st to 5th. Ph.D., Saurashtra University, Rajkot.

ñWEB SITES

ibid.

<http://en.wikipedia.org/wiki/methodology>

[http://hofeezrm.hubpages.com/hub/types of research.](http://hofeezrm.hubpages.com/hub/types_of_research)

http://en.wikipedia.org/wiki/Educational_research

<http://www.performancezoom.com/performancezoom-pichers/likert.gif>

<http://www.attitudes.wikipidia.ac.in>

[http://www.journal of electronique of historides probablities and statstique.](http://www.journal_of_electronic_of_historides_probabilities_and_statistique)

Loc cit. Khan and Weiss.

[http://en.wikipedia.org/wiki/population in methodology](http://en.wikipedia.org/wiki/population_in_methodology)

[http://en.wikipedia.org/wiki/research methodology.](http://en.wikipedia.org/wiki/research_methodology)

[http://nursing planet.com/nursing_research/e-book/instrumental.html](http://nursing_planet.com/nursing_research/e-book/instrumental.html)

<http://www.alzheimer-europoe.org/research/understanding-dementia>

[http://nursing planet.com/nursing_research/e-book/instrumental.html](http://nursing_planet.com/nursing_research/e-book/instrumental.html)

[http://en.wikipedia.org/wiki/educational_research.](http://en.wikipedia.org/wiki/educational_research)

<http://www.u.tube>.how to use spss

<http://www.u.tube>.how to make statistical analysis.

ñDICTIONARIES AND ENCYCLOPEDIAS

Chaplin, J.P. (1976), Dictionary of Psychology, Delhi: Delhi Publishing Co. Inc.

Collins, (1987) Cobuild English Language Dictionary. Collins Publishers, The University of Bermingham.

English H.B. and English, A.C. (1958) A Comprehensive Dictionary of Psychoanalytical Terms, London: Longmans.

Good, C.V. (1959). Dictionary of Education. (2nd Edition), New York: McGraw Hill Book Co. Inc.

Harris, C.W. (1960), encyclopedia of Educational Research. New York: MacMillan Company.

Miranda, S. (2000) New Oxford Intermediate Learner's Dictionary. Oxford: Oxford University Press.

Websters Seventh Collegiate Dictionary. (1967), Kolkata: Scientific Book Agency.

ñJOURNALS AND ARTICLES

Journal of Indian Education, Volume XXVII, No.3 November, 2001, New Delhi: NCERT.

National Curriculum Framework for School Education (2000), New Delhi: NCERT

Journal of Indian Education, Volume XXVIII, No.2, August, 2002, New Delhi: NCERT.

Crowder N.A., (1963), On the Differences Between Linear and Intrinsic Programming, Phi. Delta Kappan, Vol.44

Kinnaman, D.E., (1990), "What the Research Telling US?" Classroom Computer Learning 10/6

Pandya, S.C. & Chaudhry J. (2000) Effect of Computer Assisted Learning (CAL) in achieving higher cognitive skill. Journal of All India Association for Educational Research Vol.12

Ranade, M.D. (2004), Effective Study and Critical Evaluation of a Computer Assisted Instructional Package Developed for Teacher Educators. Journal of All India Association for Educational Research Vol. 16

Shah B.(1989) Computer in Education: Teacher's Role and Teacher's Training Programme. Media Technology for human resource development.2(1)

The English Teacher An International Journal. Institute of English Language Education. Bangkok: Assumption University Press.

ñSURVEYS

M.B. Buch, (1987), Third Survey of Research in Education, NCERT, New Delhi,

M.B. Buch, (1991), Fourth Survey of Research in Education, NCERT, New Delhi,

M.B. Buch,(1979),Second Survey of Research in Education Society for Educational Research and Development, Baroda.

(1987), Third Survey of Research in Education, National Council of Educational Research and Training, N.Delhi.

(1991),Fourth Survey of Research in Education (1983-88), Vol.- I & II, National Council of Educational Research and training, N. Delhi.

S.K. Kulshrestha, A Study of Intelligence and Scholastic Achievement of X and XI classes Students in U.P. cited in M. B. Buch Survey of Research in education, Faculty of Education and Psychology, M.S. University