5.4 SUMMARY

The researcher had thus analyzed the data and described the findings in this chapter. This had fulfilled the objectives of studying the variables. In order to test the hypothesis that has formulated initially, the researcher has carried out statistical tests. Testing each hypothesis provided valuable insights and results about the variables.
CHAPTER – 6

SUMMARY AND CONCLUSION

6.0 INTRODUCTION

In the previous chapters, statement of the problem, review of theoretical literature and review of previous researches, objectives and hypothesis of the study, research methodology, data analysis and interpretation were discussed in detail.

This chapter presents the summary of the study. It gives an outline about various aspects such as, procedure adopted for the study, conclusion based on the findings in brief, together with suggestions for improving educational practice and for further research.

6.1 SUMMARY OF THE RESEARCH

The present age was experiencing the knowledge explosion as extensive as, never seen before. Due to this reason, it becomes impossible to master everything by a single individual. From this fact arises the need of the specialized persons for the different field. Today the educational institutes are imparting the specialized education to the students according to the requirement of the different fields. For this, these institutes required the students with the required level of different abilities. This situation was also creating the dilemma for the students and parents as well. To solve this dilemma for students, it was necessary to have knowledge of exact ability of a given field beforehand. Therefore, researcher decided to construct and standardize a Differential Ability Test Battery for ninth standard school students to help the concerned students and institutes to find out their different abilities such as English Verbal Ability, Numerical Ability, Spatial Ability, Closure Ability, Clerical Ability, Reasoning Ability, Mechanical Ability and Psychomotor Ability.
Objectives of the study

In present study the researcher carried out this study to accomplish following objectives:

(1) To construct and standardize the Differential Ability test battery for school students

(2) To assess the levels of differential abilities of school students on following abilities:
   i. English Verbal Ability
   ii. Numerical Ability
   iii. Spatial Ability
   iv. Closure Ability
   v. Clerical Ability
   vi. Reasoning Ability
   vii. Mechanical Ability
   viii. Psychomotor Ability

(3) To compare the effect of gender on differential abilities of school students

(4) To compare the effect of area on differential abilities of school students

Hypotheses of the study

Based on the objectives of the study, the researcher will test the following null hypotheses to obtain findings for the present study.

Ho1. There will be no significant difference between the mean scores of boys and girls in Differential Ability Tests.

Ho1.1 There will be no significant difference between the mean scores of boys and girls in English Verbal Ability Test.
H01.2 There will be no significant difference between the mean scores of boys and girls in Numerical Ability Test.

H01.3 There will be no significant difference between the mean scores of boys and girls in Spatial Ability Test.

H01.4 There will be no significant difference between the mean scores of boys and girls in Closure Ability Test.

H01.5 There will be no significant difference between the mean scores of boys and girls in Clerical Ability Test.

H01.6 There will be no significant difference between the mean scores of boys and girls in Reasoning Ability Test.

H01.7 There will be no significant difference between the mean scores of boys and girls in Mechanical Ability Test.

H01.8 There will be no significant difference between the mean scores of boys and girls in Psychomotor Ability Test.

**H02. There will be no significant difference between the mean scores of rural and urban in Differential Ability Tests.**

H02.1 There will be no significant difference between the mean scores of rural and urban area school students in English Verbal Ability Test.

H02.2 There will be no significant difference between the mean scores of rural and urban area school students in Numerical Ability Test.

H02.3 There will be no significant difference between the mean scores of rural and urban area school students in Spatial Ability Test.
Ho2.4. There will be no significant difference between the mean scores of rural and urban area school students in Closure Ability Test.

Ho2.5 There will be no significant difference between the mean scores of rural and urban area school students in Clerical Ability Test.

Ho2.6 There will be no significant difference between the mean scores of rural and urban area school students in Reasoning Ability Test.

Ho2.7 There will be no significant difference between the mean scores of rural and urban area school students in Mechanical Ability Test.

Ho2.8 There will be no significant difference between the mean scores of rural and urban area school students in Psychomotor Ability Test.

**Delimitations of the study**

During research ideally researcher consider the whole universe for the study of a phenomena but it is not possible due to many factors like physical distances, financial resources, time limit and at last huge number of population. Therefore researcher has to resort to some sort of limitation for the present study. These limitations are called the delimitations of study. So following were the delimitation of the study:

So this study had been delimited under the following points:

- This study was delimited for the schools of Karnataka state only.
- This study was applied to the students included in ninth standard only.
- This study was held only on the variables like gender and area.
- The attempt to measure Ability will be limited only to paper-pen test having multiple choice questions.
Definitions of key terms

Following were the definitions of key words in the present study:

Theoretical definitions:

(i) Differential: A difference in the amount, value or size of something, especially the difference in rates of pay for people doing different work in the same industry or profession.

(Oxford advanced dictionary)

(ii) Ability: A level of skill or intelligence.

(iii) Verbal ability: Verbal ability refers to the comprehension of words and ideas or a person’s ability to understand written language.

(iv) Numerical ability: Numerical ability refers to facility in manipulating numbers quickly and accurately, in tasks involving addition, subtraction, multiplication, division, squaring dealing with fractions etc.

(v) Spatial ability: Spatial ability is concerned with perceiving spatial patterns accurately and following the orientation of figures when their position in a plane or space is altered.

(vi) Closure ability: It refers to the ability to see quickly a whole stimulus.

(vii) Clerical ability: It refers to perpetual speed and accuracy is measured by items in which the examinee must rapidly assess the sameness or difference of paired groups of letters or numbers.

(viii) Reasoning ability: It refers to the ability to apply the process of induction or to reason from specific information to a general principle.

(ix) Mechanical ability: Mechanical ability refers to the ability to understanding of basic mechanical principles, simple machines, tools, electrical and automotive facts.

(x) Psychomotor ability: It refers to precise movements requiring eye hand coordination under highly speeded condition.
Operational Definitions:

(i) **Verbal ability:** It refers to the score obtained by a student on the verbal ability test. The test will include comprehension of words and ideas or a person’s ability to understand written language.

(ii) **Numerical ability:** It refers to the score obtained by a student on the Numerical ability test. It will include the ability refers to facility in manipulating numbers quickly and accurately, in tasks involving addition, subtraction, multiplication, division, squaring dealing with fractions etc.

(iii) **Spatial ability:** It refers to the score obtained by a student on the spatial ability test. It will be concerned perceiving spatial patterns accurately and following the orientation of figures when their position in a plane or space is altered.

(iv) **Closure ability:** It refers to the score obtained by a student on the closure ability test. It will refer to the ability to see quickly a whole stimulus.

(v) **Clerical ability:** It refers to the score obtained by a student on the Clerical ability test. It will refer to perpetual speed and accuracy is measured by items in which the examinee must rapidly assess the sameness or difference of paired groups of letters or numbers.

(vi) **Reasoning ability:** It refers to the score obtained by a student on the reasoning ability test. It will refer to the ability to apply the process of induction or to reason from specific information to a general principle.

(vii) **Mechanical ability:** It refers to the score obtained by a student on the mechanical ability test. It will include the ability to understanding of basic mechanical principles, simple machines, tools, electrical and automotive facts.

(viii) **Psychomotor ability:** It refers to the score obtained by a student on the psychomotor ability test. It refers to precise movements requiring eye hand coordination under highly speeded condition.
Construction:
According to Webster dictionary (1961) “construction is the act of putting parts together to form a complete and integrated object or the process of mentally uniting ideas or conceptions so as to form an organic or congruous object of thought”.

By construction, the investigator means, building of anything, which is not haphazard, rather it is planned in systematic manner with various steps. Building or construction of a test has many steps such as selection of items, editing of items, pre-tryout, tryout, item analysis, final selection of items etc.

Standardization:
To prepare the final form of Differential Ability Test after the process of construction and pre-primary, primary try out and item analysis and finding out difficulty value and discriminative value, using statistical calculators on the self constructed test. The process including the method of administrating the test, establishment of criterion of time limit and instructions, finding out of validity and reliability etc and after passing these stages, a preparation of the final test, is called the standardization of test.

Test:
A set of questions, problems, or exercises to which the student was asked to respond to order to obtain an appraisal of designated characteristics of the students. A series of questions or problems designed to determine a level of information, achievement, or aptitude for an individual student.

Students: A person attending an educational institution or enrolled in any educational program; also called pupil. An individual for whom instruction was provided in an education program under the jurisdiction.

In the present study students means all the Boys and Girls studying in Hindi and English medium schools, teaching the syllabus of different subjects framed by State Government of Karnataka for standard 9th.
Variables of the study

The variables under this study are stated as below.

❖ **Independent Variable**

  - Gender: Boys and Girls
  - Area: Rural and Urban

❖ **Dependent Variable**

Differential Abilities were the dependent variables under the study. It includes:

1. English Verbal Ability
2. Numerical Ability
3. Spatial Ability
4. Closure Ability
5. Clerical Ability
6. Reasoning Ability
7. Mechanical Ability
8. Psychomotor Ability

❖ **Controlled Variable**

1. Ninth Standard School students
2. English Medium Students
3. Karnataka State

Population of the study

In present study, researcher has drawn the boundaries of population by accepting geographical area of Karnataka state as population. Thus population of present study was the students of class ninth studying in geographical area of Karnataka state with medium of instructions in English only. It covered the students of whole Karnataka State.
In present study, the whole geographical area of Karnataka state was considered as Population. The area for convenience was divided into in five zones. The area for convenience was divided into in five zones such as Zone-I- Bengaluru, Zone-II- Belgaum, Zone-III- Gulbarga, Zone-IV- Mysore, and Zone-V- Shimoga

**Sample of the study**

Sample represents a part of population which represents the entire population and the findings drawn from it, are generalized over entire population. In present study, during sampling prime importance was given to variables like area, gender and class. The number of students in a class at time of data collection was not found equal. So during sampling, number of students in class was not considered of prime importance. All the students of selected classes were taken as samples.

**Sample selection for Pre-Pilot Test:**

Researcher randomly selected two schools from Central zone to apply the pre-pilot test. Researcher took permission of principals to administer the test on students of their respective schools. After permission of authority, researcher randomly selected students from class ninth of that school. From the selected school 100 students were drawn as sample during pre-pilot test.

**Sample selection for Pilot Test**

During pilot testing Stratified Random Sampling technique was used to derive sample. At the time of pilot testing, the area was divided in five zones. The sample size for piloting study was 250. To make sampling economically and practically viable two zones were selected randomly. Total 126 boys and 124 girls were selected as sample. Selections of schools were done with stratified random cluster method. Help of school teachers was taken in administration of the pilot test.
Sample selection for final data collection

For this study, stratified random sampling was employed to divide the whole Karnataka in five parts i.e. Central, North, South, Kutch, and Saurashtra. Stratified technique was used for dividing whole Karnataka into five zones. Simple random technique-lottery method was used for identifying the proportionate number of schools. Cluster technique was used for selecting the samples at class levels. Total sample size for final data collection was 5014, of which 2858 were boys and 2156 were girls; 2666 were from urban area schools and 2348 were from rural area schools.

Research method

In the present research study, survey method was used since the objective of the present research study was concerned with the present and attempts to determine the status of the phenomena under investigation. In the present research study Descriptive Survey Method was employed.

Research tools

The aim of the study was to test the Differential Ability test battery of the students of the Karnataka state. However, there was no specific tool available to conduct the study. So, researcher decided to self construct and standardized a tool for the present study. A total of eight ability tests were constructed such as English verbal ability, Numerical ability, Mechanical ability, Spatial ability, Closure ability, Reasoning ability, Clerical ability and Psychomotor ability tests. For the tests, scoring key was developed separately on a paper. Scoring key was used to evaluate answers given by students. Using answer key score of students in the test were interpreted. For every right answer student got score of ‘1’ . For every wrong answer student got score of ‘0’. For every no attempt of question students also got score of ‘0’. Sum of right answer in particular test was considered as ability score of individual in the test. Summary of data of answer sheets was entered in worksheets of MS-Excel computer programme for further analysis and testing of hypotheses.
**Steps for construction**

The study was aimed to construct and standardize Differential Ability Test Battery (DATB). For this, researcher first constructed all the different ability tests, and after this combined all these tests and formed a whole Differential Ability Test Battery (DATB).

Through this process, the Differential Ability Test Battery was finalized. Firstly, all pre-pilot tests were administered on sample of 100 students. After proper statistical analysis of data obtained, items were selected for pilot test. Thus obtained pilot tests were administered on 250 students selected from population by stratified random cluster sampling.

Details of procedure for construction of all types of ability test were same, so here the steps for construction were discussed in general.

The steps followed for constructing Differential Ability Test Battery were as under:

1. Content Analysis
2. Construction of items
3. Construction of Pre-primary form and Pre-piloting
4. Construction of Primary form of Differential Ability Test Battery
5. Expert opinion on Differential Ability Test Battery
6. Pilot Testing and Item Analysis
7. Construction of Final form of Differential Ability Test Battery
8. Administration of Final Differential Ability Test Battery

Procedure followed at each step was described in detail in its order.

**Content Analysis**

The first step of construction of any research tool was to analyse the content. It means researcher should understand the concept and the construct. So, the researcher collected the related literature and reviewed it to understand the Different Ability.
Construction of Items

After getting deep understanding regarding the concept and types of Different Ability through the regards review of the related literature, the researcher started to write the items for the Different Ability Test. For the format of the item the researcher took different tools related to the measurement of the Different Ability Test as the base. Researcher used different Ability Test from internet (web reference) for guideline of written items. After getting deep insight about the meaning, types and characteristics of learning style the researcher decided to write the items for Learning Style Inventory. At the time of writing each item, the behaviours of the learners in the following situation or condition were kept in mind.

1. Examination Preparation
2. Reading
3. Classroom teaching and learning
4. Problem solving and Reasoning
5. Concentration
6. Memorizing the content learned

After making confirmed decision about abilities to be involved in present study, the researcher separated all the reviewed literature according to ability involved in study. After conceptual study of literature, tests and items involved in tests, researcher note down the measurable behaviour changes of students in respect to particular ability. Keeping consideration of age, standard and regional educational experiences, researcher formed as many as possible items for ability.

Construction of Pre-primary form and Pre-piloting

Items constructed for test was noted down properly in a form of test. A title page and instructions page with illustration for test was prepared separately for the test. The researcher thus prepared rough format of pre-primary test. Rough format of pre-primary test was edited by the researcher with the help of experts who’s requested to check grammatical mistake,
numerically mistakes, any inconvenience in understanding meaning of sentences and any other weak point they noticed in test. After receiving expert’s opinion, according to their suggestions, correction was made in the test. Thus, evolved the final format of test, it was typed out and printed format of pre-primary test was constructed.

To check the accuracy of pre-primary test, it was applied on small sample. Main objective of pre-pilot testing was to eliminate loose items from ability test. According to research design and to obtain effective results, during sampling and application of test standard procedure was followed strictly.

**Construction of Primary form of Differential Ability Test Battery**

**(1) Final format of Primary test**

After Pre-piloting, the investigator made the suggested changes, final forms of primary tests were constructed. So at the end, primary form of Differential Ability Test Battery was constructed satisfactorily.

**(2) Instructions and timing of primary test**

Instructions of tests were reconstructed using examples. Pattern of instructions was not changed but illustrations given in instruction were changed. Illustrations used were from items of pre primary tests which were not included in primary tests. Time limit was also specified in the instructions of test. Time limit of each test was settled according to analysis of data.

Time for completion of test was noted down by researcher during pre-pilot testing. Keeping the time duration for completing pre primary test in mind, the researcher decided to set time duration for primary test. For these purpose, the researcher performed primary test on 100 students belonging to standard Ninth of urban and rural area.

For deciding the time duration of the test, the duration between when last answer sheet was submitted and the time when the test started was calculated and accepted as time duration of test. As the time duration up to last answer sheet submitted was considered as time taken to
answer all the items of respective test, time contributed to one item was calculated by ratio of time duration and total number of items.

**Experts’ opinion on Differential Ability Test Battery**

After the construction of final form of primary test, this final form of ability test was again given to the experts to identify any minor language mistake, grammatical mistake, numerical mistakes, any inconvenience in understanding the meaning of sentences and any other weak point remaining in the tests due to oversight of researcher. Suggested correction in instruction sections of test was applied and also setting of typed instructions, in distracters, difficulty level of example etc.

**Pilot Testing and Item Analysis**

**(1) Sampling for pilot testing**

According to final sample size for pilot test was 250 students. Total 126 boys and 124 girls were selected as sample.

**(2) Administration of pilot testing**

Separate seating arrangement was done according to standard and convenience of school. Students were addressed by researcher regarding testing schedule and common purpose of test. Testing programme was scheduled in such a way that students get their recess time according to school schedule. Time restriction was implemented on students during pilot testing but students were asked to complete test as early as possible and not to waste more time on any question, having doubt for correct answer in their mind. Pilot testing was carried out in the following steps after addressing them:

1. Test was given to students individually.
2. Students were asked ‘not to open’ test before instruction given them to do so.
3. Students were asked to open test instructions and to read them carefully.
4. Researcher makes ideal reading of instruction with explanations.
5. Answer sheet were provided to student individually.
6. Students were asked to fill the information in answer sheet.

7. Students were asked to start answering of test.

8. Time of starting the test was noted by researcher.

9. During test time researcher supervise the class so that students may not make any misconduct during answering the test.

10. Students who complete answering the test before time were asked to keep silence and their question book and answer sheets were collected from them.

11. Students were asked to stop answering the test as time limit over.

12. Test booklet and answer sheet were collected.

(3) Interpretations of data for pilot testing

Collected answer sheet were arranged according to test. The researcher prepared answer key to evaluate answer sheets. Using answer key all the answer sheets were evaluated. Standards for evaluation were as under:

1. For every right answer student get score '1'.

2. For every wrong answer student get score '0'.

3. Sum of right answer in particular test was considered as ability score of individual in that test.

Data of answer sheets were entered in respective worksheets, prepared in MS-Excel computer programme.

(4) Analysis of data for pilot testing

Scores of students were derived from their answer sheet, using answer key. For each correct answer score ‘1’ and for incorrect answer score ‘0’ was given to student, Separate data sheet prepared in MS-Excel computer programme. The data obtained from pilot testing of Different Ability Test Battery, were analyzed to select the items for final test. For test data of piloting were arranged in descending order. From these arranged data, 27% of total students having higher score (placed at top) were accounted as upper level students while 27% of total
students having lower score (placed at bottom) were accounted as lower level students. Using the data of upper level student’s group and lower level student’s group, difficulty value and discrimination value of each item were calculated. The item having difficulty value in between 0.20 to 0.80 and discrimination value more than 0.20 were selected to involve in final test. For distracter analysis objects from sample were selected by stratified random sampling and according to their selection of option (distracter), analysis for each item of test was done. Items having acceptable difficulty value, discrimination value and proper distractor analysis were included in final test.

(5) Summary of Data Analysis

Data obtained from pilot testing were analyzed by proper statistical methods. Selection of items for final test was carried out on base of result obtained from data analysis. The numbers of items remained for final test in each component of the abilities were 20, therefore a total of 160 items remained in the final differential ability test battery.

Construction of Final form of Differential Ability Test Battery

Timing of the test:

Time limit for test was finalized according to result obtained in pilot testing. For test total number of items remained in final form were multiplied with probable time spend for one question, obtained calculation and accepted as time for the respective test.

Printing of test:

Title page for test was reconstructed with proper information in it. Instructions of the test were arranged in that way, so during going through instruction students may not be able to view test questions. Test was printed on A4 size paper with proper font size and line spacing.

Answer sheets:

Answer sheet for the test was printed separately. Name of respective test showed on answer sheet. On answer sheet adequate space for writing name and general number was provided.
For convenience researcher prepared an information sheet having one general number and including some common information regarding student. Information sheet having perforated small part indicating general number was to be detached by student and to keep with them up to completion of test.

**Administration of Final Differential Ability Test Battery**

**(1) Sample for Final test**

To apply final Ability test researcher decided to draw sample from each Zone. So each zone firstly sampling was stratified and place selected were urban and rural so secondly it was stratified sample. From the selected schools classes were selected randomly and all students of selected ninth standard were included in sample so at the end it was random sampling. At the beginning it was decided to collect sample of 6500 students as 1300 students from each zone, but looking to unequal strength of students in schools and class researcher decided to select all the students present in class at the time of test. Thus with help of stratified – random – cluster sampling total 5014 students were selected as sample.

**(2) Administration of the final test**

For testing programme, written application was submitted to the principal of schools and written permission was taken from principal of the schools, afterwards testing was carried out. During testing programme, according to convenience of school standard wise separate sitting arrangement was done. To fill up information sheet in class, help taken from class teachers. For each test of differential ability test researcher made a standard reading of instruction in class so that effect of weak eyesight, poor verbal knowledge and doubt may minimize. Such reading helps to make student ready for test and to stop inter communication within them. Procedure of testing was carried out according to steps stated below:

1. Main information sheet was provided to student individually and asked to separate perforated slip and to keep it with them till testing programme completes.

2. Test was given to students individually.
3. Students were asked `not to open´ the test before instruction given them to do so.

4. Students were asked to open test instructions and to read them carefully.

5. Separate answer sheet provided to students according to test.

6. Students were asked to fill the information in answer sheet.

7. Researcher performed ideal reading of instruction with explanations.

8. Students were asked to start answering of test.

9. Time of starting the test was noted by the researcher.

10. During test time, the researcher supervised the class so that students may not make any misconduct during answering the test.

11. Students who completed answering the test before time were asked to keep silence and their question paper and answer sheets were collected from them.

12. Students were asked to stop answering the test as time limit got over.

13. Test booklet and answer sheets were collected.

(3) Interpretations of data for final test

Collected answer sheets were arranged according to test. Scoring keys for the test were developed separately on plastic paper. Scoring keys were able to identify correct answers given by students. Using answer key score of student in test was interpreted. Using answer keys score of student in particular test were derived. Standards for scoring were as under:

1. For every right answer student get score ‘1’.

2. For every wrong answer and no answer student get score ‘0’.

3. Sum of right answer in particular test was considered as ability score of individual in that test.

Data of answer sheets were entered in respective worksheets, prepared in MS-excel computer programme.
(4) Statistical Analysis of Data

Reliability of tests was established using test-retest method, split-half method and Kuder Richardson-20 method. Validity of tests was established by using face validity, Content validity and concurrent validity method according to need. After application of Ability test, score of ability test was derived. The score was derived from answer sheet used by individual, showing marking for correct answer according to him. Answer keys were prepared and used for scoring. Hypotheses were checked using gathered information. From result of hypotheses and collected information, where difference of mean was found significant, according to that norms were established. Area norms and Gender norms were established for the Differential Ability Test Battery.

Data collection

Data collection was carried out during academic year 2017-18. From pre piloting test to final test researcher personally visited the selected schools to collect data. Plan for data collection was scheduled in working days of school. Permissions for data collection were taken from principals of schools. During each testing schedule researcher tried to maintain uniform conditions like sitting arrangement, instruction explanation and timing of test. Test booklets were checked regularly to cancel such test booklets in which students marked answer or any undesirable marking.

Statistical analysis of data

After the collection of data, data was statistically analyzed for checking the hypothesis of the study using the t values. The reliability of test was established using test-retest method and split-half method. Validity of test was established by using Face validity, Content validity and Concurrent validity. Hypotheses were tested after analysis of data using different statistics. Area and Gender norms were established for Differential Ability Test Battery. The assumptions of Normal Probability Curve were used to determine the levels of differential
ability of the students in total and component wise. Mean, Standard Deviation and t-value were calculated for all the variables to test the hypotheses.

6.2 MAJOR FINDINGS OF THE STUDY

1. Differential Ability Test Battery was found to be reliable and valid.

2. Each component of Differential Ability Test was standardized by calculation reliability of the test using test-retest method, split-half method and Kuder Richardson-20 method. The tool was found to be reliable. Furthermore, the tool was found to be valid. It was measured by establishing face validity, content validity and concurrent validity.

3. The levels of differential abilities were determined by the assumptions of normal probability curve. The students possessed high, average and low levels of differential abilities.

4. The mean scores of all the components of Differential Ability Tests were found to be average. According to the highest to lowest percentage of mean scores, the components of differential abilities were sequenced as Psychomotor ability, Numerical ability, English verbal ability, Clerical ability, Closure ability, Reasoning ability, Mechanical ability, and Spatial ability.

5. The boys students showed higher English Verbal Ability and Clerical Ability compared with girls students, whereas, girls students showed higher Closure Ability than boys students.

6. The rural students showed higher Clerical Ability compared with urban students.
6.3 DISCUSSION OF THE FINDINGS

In the present study, gender makes no significant difference in the Differential Ability Tests as whole, whereas, a significant influence of gender on two of the components of the Differential Ability Tests were found, i.e. English Verbal Ability Test and Clerical Ability Test. In the present study, the boys’ students have English Verbal Ability and Clerical Ability when compared to girls’ students. These results were contradictory to the results of Desai, U.R., (1970) research work, which reported girls with higher language ability than boys, and in another study by Bhavsar, S.J., (1974) there was no difference in gender on clerical ability test. In the present study, area makes no significant influence on the Differential Ability Tests as whole, however, area showed a significant influence on the Clerical Ability in ninth standard students. In the present study, rural students showed higher Clerical Ability than urban students. The researcher found this result quite surprising as urban students were lower in clerical ability than rural students. Because, the rural students were not exposed to many learning opportunities due to their poor learning environment, however, those students were higher in clerical ability when compared to urban students, where these students were high opportunity for good learning environment.

6.4 EDUCATIONAL IMPLICATIONS

On the basis of the findings of the study, relevant literature studied and observations made by the researcher during the study, a few recommendations which may help in developing differential abilities were offered.

1. From the findings of the present study it was revealed that majority of students have moderate level of differential abilities. The levels of complete Differential abilities and each component of differential abilities were found to be lower in the ninth standard students under the study. This was found to be an alarming situation for the society for development. As the teachers were the moulders of the students who are future citizens, they should get...
explored to more ability oriented workshops and conferences to imbibe that knowledge among students for the development of different abilities. Also the education curriculum should aim at increasing the level of differential abilities in them.

2. One of the findings from the study showed that boys have high level of English Verbal ability and Clerical Ability than girls. The school education should concentrate to increase the level of these abilities along with all other abilities among the girls as well, since now more number of girls was being hired for their skills and abilities in various job sectors.

3. Furthermore, the study also showed that rural students have high level of Clerical ability than urban students. The schools of urban area should also focus on to fulfill this limitation. Also the levels of rural area students in Differential abilities though higher than urban students but not satisfying, therefore, the rural area schools should take more responsibility in inculcating differential abilities among the students.

4. National and state level, curriculum framers should take steps to make educators aware of the various differential abilities by arranging seminars and workshops.

5. Present study was conducted to construct and standardize a Differential Ability Test Battery for ninth standard school students for Karnataka state only. As prior discussed, aptitude was an inherent ability of a person to learn or to perform any specific job with fruitful outcomes. Present study was conducted on 5014 students of schools of Karnataka state. It has provided a useful result which can be employed on the school students with reasonable accuracy to find out their Differential Abilities.

6.5 SUGGESTIONS FOR FURTHER RESEARCH

Researcher has completed the research in the field of test construction and standardization. Differential ability test battery (DATB) was constructed and standardized for ninth standard school students of Karnataka state. To expand the limits of knowledge in field of present study and in related other fields, researcher recommends for following research areas:
(a) In present study DATB was standardized on school students of English and Hindi medium students in Karnataka state. Such test can be developed for students of other medium also.

(b) In present study DATB was developed for only eight abilities. Such tests can be developed for more other abilities also.

(c) DATB can be developed for graduate level students also.

(d) DATB can be developed for higher secondary school students also.

(e) In present study, effect of geographical area and gender on Differential Ability tests scores was studied. Similarly effect of socio-economical status, scholastic achievement, cast, parents’ Education qualification, parents’ occupation etc can also be studied.

(f) Forecasting validity of developed DATB can be established by longitudinal study.

(g) The DATB can be used to study and compare the abilities of CBSE and State board schools in Karnataka and other States as well.

6.6 CONCLUSION

The present has been undertaken on a small criterion. The researcher has undertaken the study keeping in mind the limitation of time, money and practicability. The researcher has taken all possible precautions in conducting the study. The researcher has made an attempt to construct and standardize a Differential Ability Test Battery to be useful for students, teachers, administrator and government at large.