CHAPTER III
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CHAPTER III
METHODOLOGY

3.0 Introduction

In this chapter the researcher has described the methodology of the study, involving the variables, operational definitions, rationale for the research hypothesis sampling, procedure of data collection and statistical techniques in analyzing the data.

3.1 Restatement of the Problem:

The problem for the present study may be stated as "A Comparative Study of Intelligence Quotient and Emotional Quotient on Achievement in Kannada Language of Ramdurg Taluk"
3.2 Variables of the Study

- **Independent Variable**
  - Intelligence Quotient and
  - Emotional Quotient

- **Dependent Variable:**
  - Achievement

- **Moderator Variable:**
  - Gender (Boys / Girls)
  - Locality (Rural / Urban)
  - Type of Management (Government and Private)

3.3 Hypotheses

1. There is no significant difference between boys and girls of IX standard with respect to their intelligence quotient.

2. There is no significant difference between boys and girls of IX standard with respect to their emotional quotient.

3. There is no significant difference between boys and girls of IX standard with respect to their achievement in Kannada language.
4. There is no significant difference between Government and private school students of IX standard with respect to their intelligence quotient.

5. There is no significant difference between Government and private school students of IX standard with respect to their emotional quotient.

6. There is no significant difference between Government and private school students of IX standard with respect to their achievement in Kannada language.

7. There is no significant difference between rural and urban school students of IX standard with respect to their intelligence quotient.

8. There is no significant difference between rural and urban school students of IX standard with respect to their emotional quotient.

9. There is no significant difference between rural and urban school students of IX standard with respect to their achievement in Kannada language.

10. There is no significant interaction effect of intelligence quotient (High and Low) and emotional quotient (High and
11. There is no significant interaction effect of intelligence quotient (High and Low) and emotional quotient (High and Low) on achievement in Kannada language of IX standard students in total.

12. There is no significant interaction effect of intelligence quotient (High and Low) and emotional quotient (High and Low) on achievement in Kannada language of IX standard boys.

13. There is no significant interaction effect of intelligence quotient (High and Low) and emotional quotient (High and Low) on achievement in Kannada language of IX standard girls.

14. There is no significant interaction effect of intelligence quotient (High and Low) and emotional quotient (High and Low) on achievement in Kannada language of IX standard students of Government schools.

15. There is no significant interaction effect of intelligence quotient (High and Low) and emotional quotient (High and Low) on achievement in Kannada language of IX standard students of private schools.
Low) on achievement in Kannada language of IX standard students of urban schools.

16. There is no significant interaction effect of intelligence quotient (High and Low) and emotional quotient (High and Low) on achievement in Kannada language of IX standard students of rural schools.

17. There is no significant relationship between intelligence quotient and emotional quotient with achievement in Kannada language of IX standard students in total.

18. There is no significant relationship between intelligence quotient and emotional quotient with achievement in Kannada language of IX standard boys.

19. There is no significant relationship between intelligence quotient and emotional quotient with achievement in Kannada language of IX standard girls.

20. There is no significant relationship between intelligence quotient and emotional quotient with achievement in Kannada language of IX standard Government school students.
21. There is no significant relationship between intelligence quotient and emotional quotient with achievement in Kannada language of IX standard Private school students.

22. There is no significant relationship between intelligence quotient and emotional quotient with achievement in Kannada language of IX standard urban school students.

23. There is no significant relationship between intelligence quotient and emotional quotient with achievement in Kannada language of IX standard rural school students.

24. Intelligence quotient and emotional quotient would not be significant predictors of achievement in Kannada language of IX standard students in total.

25. Intelligence quotient and emotional quotient would not be significant predictors of achievement in Kannada language of IX standard boys.

26. Intelligence quotient and emotional quotient would not be significant predictors of Achievement in Kannada language of IX standard girls.

27. Intelligence quotient and emotional quotient would not be significant predictors of Achievement in Kannada language of Government school IX standard students.
28. Intelligence quotient and emotional quotient would not be significant predictors of Achievement in Kannada language of Private school IX standard students

29. Intelligence quotient and emotional quotient would not be significant predictors of Achievement in Kannada language of urban school IX standard students

30. Intelligence quotient and emotional quotient would not be significant predictors of achievement in Kannada language of rural school IX standard students

31. There is no significant direct and indirect effect of intelligence quotient and emotional quotient on achievement in Kannada language of IX standard students in total.

32. There is no significant direct and indirect effect of intelligence quotient and emotional quotient on achievement in Kannada language of IX standard boys.

33. There is no significant direct and indirect effect of intelligence quotient and emotional quotient on achievement in Kannada language of IX standard girls.

34. There is no significant direct and indirect effect of intelligence quotient and emotional quotient on achievement
in Kannada language of IX standard students of Government schools.

35. There is no significant direct and indirect effect of intelligence quotient and emotional quotient on achievement in Kannada language of IX standard students of Private schools.

36. There is no significant direct and indirect effect of intelligence quotient and emotional quotient on achievement in Kannada language of IX standard students of urban schools.

37. There is no significant direct and indirect effect of intelligence quotient and emotional quotient on achievement in Kannada language of IX standard students of rural schools.

3.4 Operational Definitions

Independent Variable

1. Emotional Intelligence: It is being able to monitor one's own and other feelings and emotions, to discriminate among them, and to use this guide one's thinking and actions (Salovey and Mayor, 1990). The emotionally intelligent personal is skilled in
four areas: Identifying, Using understanding and regulate emotions. (Salovey and Mayer 1993), Goleman (1995)

Emotional intelligence consists of five components: knowing our emotions (self awareness), managing them, motivating ourselves, recognizing emotions in others (empathy) and handling relationships.

ii. Intelligence Quotient: Intelligence is ability to solving the problems. Intelligence Quotient is a special capacity which different from a person to another person. It tells the quality of minds. An intelligence quotient is a score derived from one of several different standardized tests attempting to measure intelligence. Intelligence quotient scores is associated with factors such as morbidity and mortality, parental social status, and to a substantial degree, parental intelligence quotient.

Dependent Variable

i. Achievement: Achievement encompasses students' ability and performance in examination. It is multi dimensions is intricately related to human growth and cognitive, emotional, social and physical development; it reflects the whole child; it is not related to a single instance but occurs across time and levels, through
a students; life in public school and into post secondary years and working life (Steinberg, 1993). Merriam Webster defines achievement as "the quality and quantity" of a student work. This second definition is used in the research.

**Moderator Variable**

i. **Gender**: Gender of the students were considered the boys and girls which will be selected for the study

ii. **Location**: The term explains where the schools are located. Rural and Urban locality will be selected for the study

iii. **Type of Management**: Government Schools and Private Schools will be selected for the study

**3.5 Design of the Study**

**3.5.1 Selection of the Sample:**

The population of the study were IX standard students in Ramdurg Taluk. The sample of 500 students of IX standard will be selected from government high school and private high schools. The sampling will be stratified, making sure that Gender (Boys and Girls), Type of Management (Government and Private) and Locality (Urban and Rural) was appropriately represented.
3.6 Tools of the Study

To measure the emotional quotient, intelligence quotient and achievement in Kannada language of IX standard students, the following tools were taken. They are as follows,

2. Raven's Progressive Matrices by Raven, J.C. (1938)
3. Achievement test was developed by the investigator.

3.6.1 Emotional Intelligence Scale:

This scale was developed by Anukool Hyde and Sanjyot Pethe (2001). The researcher came across two measures of Emotional Intelligence. A Four-Cornerstone Model explained by Cooper (1997) can understand emotional Quotient (EQ) in business and life. This
model assumes emotional intelligence as out of the realm of psychological analysis and philosophical theories and moves into the realm of direct knowing, exploration and application. The first cornerstone is emotional literacy, which builds a locus of self-confidence through emotional honesty, energy, emotional feedback, and intuition, responsibility and connection. The second cornerstones, emotional fitness strengthens authenticity, believability and resilience, expanding circle of trust and capacity for listening, managing conflict and making most of constructive discontent. The third cornerstone is emotional depth that explores ways to align one’s life and work with his or her unique potential and purpose, and accountability, which in turn, increase influence without authority. The fourth cornerstone is ‘emotional alchemy’, though which one can extend creative instincts and capacity to flow with problems and pressure and to compete for the future by building one’s capacity to sense more readily. EQ comprises various related components that strengthen emotional intelligence and give desired outcomes. There are 21 scales which best explain EQ. The scale is further grouped under five categories, namely current environment, literacy, competencies, values and beliefs, and outcomes. Cooper and Sawaf (1997) have reported EQ map in
which total score on each scale is graded in one of the four levels - optimal, proficient, vulnerable, and caution. The present work was undertaken to develop a suitable self-report measure for Indian milieu.

**Development of the Scale:**

After consulting relevant literature, 106 items were developed. Each item was transferred on a card. A panel of 50 judges with postgraduate degree with more than 10 years of experience in their relevant fields was selected for the study. Definition of Emotional Intelligence was also written on a card along with necessary instructions for the selection of the items on the cards. The cards were placed before each judge who was contacted individually. The choice for categorization of each card was noted and the frequency of choice was calculated. The items, which were chosen 7 or more times, were spotted out. The 34 items thus chosen were administered on 200 executives. The data was then tabulated and item-total correlations were calculated. Items having correlation less than the value of 0.25 (pc O. O1) were dropped. The value is taken from Fisher and Yates (1992) table of correlation coefficients and their levels of significance. The final form of the scale
constituted 34 items. The English Version of the final items was prepared in consultation with 10 judges. The inter-item correlations of the final items were also determined. (Appendix - I).

Reliability: The reliability of the scale was determined by calculating reliability coefficient on a sample of 200 subjects. The split-half reliability coefficient was found to be 0.88.

Validity besides face validity as all items were related to the variable under focus, the scale has high content validity. It is evident from the assessment of judges/experts that items of the scale are directly related to the concept of Emotional Intelligence. In order to find out the validity from the coefficient of reliability (Garrett, 1981), the reliability index was calculated, which indicated high validity on account of being 0.93.

Factors of Emotional Intelligence: The scale was administered on 200 executives and the scores obtained were subjected to factor analysis and ten factors were identified. These are self-awareness, empathy, self-motivation, emotional stability, managing relations, integrity, and self-development, value orientation, commitment and altruistic behaviour.
A. **Self-awareness:** This is being aware of one and is measured by items 6, 12, 18, 29. These items are “I can continue to do what I believe in even under severe criticism”, “I have my priorities clear”, “I believe in myself” and “I have built rapport and made and maintained personal friendships with work associates”. This factor is the strongest and explains 26.8 per cent variance and has a total factor load of 2.77. The correlation of this factor with total score is 0.66.

B. **Empathy:** is feeling and understanding the other person and is measured by items 9, 10, 15, 20, 25. These are “I pay attention to the worries and concerns of others”, “I can listen to someone without the urge to say something”, “I try to see the other person’s point of view”, “I can stay focused under pressure” and “I am able to handle multiple demands”. This factor explains 7.3 per cent variance with a total factor load of 3.11. The correlation of the factor with total score is 0.70.

C. **Self-Motivation:** This is being motivated internally is measured by 2, 4, 7, 8, 31, 34. These items are “People tell me that I am an inspiration for them”, “I am able to make
intelligent decisions using a healthy balance of emotions and reason", "I think feelings should be managed", and "I believe that happiness is an attitude". This factor accounts for 6.3 per cent variance and a total factor load of is 3.28. Its correlation with total score is 0.77.

D. **Emotional Stability**: items 14, 19, 26, 28, measure this. These are "I do not mix unnecessary emotions with issues at hand", "I am able to stay composed in both good and bad situations", "I am comfortable and open to novel ideas and new information", and "I am persistent in pursuing goals despite obstacles and setbacks". This factor explains 6.0 per cent variance with a total factor load of 2.51. The correlation of this factor with total score is 0.75.

E. **Managing Relations**: 1, 5, 11 and 17 measures this. This statements that measure this factor are "I can encourage others to work even when things are not favorable", "I do not depend on others encouragement to do my work well", "I am perceived as friendly and outgoing", and "I can see the brighter side of any situation". This factor explains 5.3 per...
cent variance with a total factor load of 2.38. The correlation of this factor with total score is 0.67.

F. **Integrity:** Items 16, 27 and 32 measure this. “I can stand up for my beliefs”, “I pursue goals beyond what is required of me”, and “I am aware of my weakness” are the statements that measure this factor. This factor explains 4.6 per cent variance with a total factor load of 1.88.

G. **Self-development:** This is measured by items 30 and 33 which are “I am able to identify and separate my emotions” and “I feel that I must develop myself even when my job does not demand it” and explains 4.1 per cent variance with a total factor load of 1.29.

H. **Value Orientation:** Items 21, 22, measure this. The statements are “I am able to maintain the standards of honesty and integrity”, and “I am able to confront unethical in others” and explains 4.1 per cent variance with a total factor load of 1.29.
I. **Commitment:** The items 23 and 24 measure this. "I am able to meet commitments and keep promises", and "I am organized and careful in my work" measure this factor. This factor accounts for 3.6 per cent variance with a total factor load of 1.39.

J. **Altruistic Behaviour:** The items 3 and 13 measure this. The items are "I am able to encourage people to take initiative", and "I can handle conflicts around me". It explains 3.0 per cent variance with a total factor load of 1.3.

**Uses of the Scale:** The scale can be used for research and survey purposes. It can also be used for individual assessment. It is self-administering and does not require the services of highly trained tester. It is eminently suitable for group as well as individual testing.

**Norms of the Scale:** Norms of the scale are available on a sample of 200 subjects. These norms can be regarded as reference points for interpreting the Emotional Intelligence scores. The users of this
scale are advised to develop their own norms based on their own samples. Individuals with high score can be considered to have high level of emotional intelligence and are likely to be high performers.

**Scoring:** Each item or statement should be scored 5 for strongly agree, 4 for agree, 3 for neutral, 2 for disagree and 1 for strongly disagree.

### 3.6.2 Raven Progressive Scale

Progressive Matrices (1938) was constructed on the prior assumption that if Spearman’s principles of Neogene’s were correct, it should provide a test suitable for comparing people with respect to their immediate capacities for observation and clear thanking. Reported invitations show how far and under what conditions these two complementary tests provide a practical means of assessing a person’s intellectual development.

The standard progressive matrices sets A,B,C,D,E is a test of persons capacity at the time of the test to apprehend meaningless figures present of his observation see the relation between them conceive the nature of the figure compelling each system relations present and by so doing develop a systematic method of reasoning.
The scale consists of 60 problems divided into five sets of 12 each. In each set the first problem is as nearly as possible self-evident. The five sets provide five opportunities for grasping the method and five progressive assessment of a person's capacity of intellectual activity (see Appendix II)

**Norms and Re-test Reliability**

The Progressive Matrices and the Mill Hill Vocabulary scales have been standardised together for representative samples. The high re-test reliability of Mill Hill Vocabulary Scale in Table 3.6 reflects the fact that people normally recall information without difficulty once it has been acquired. The lower re-test reliability of the Matrices Test in Table 3.6 reflects the fact that the output of intellectual activity tends to fluctuate more with age. In general, the re-test reliability and the inter-correlations between the Matrices and Vocabulary tests tend to be lowest of all with very young children and very old people.

Under normal conditions after maturity is reached scores on the Vocabulary test tend to remain relatively constant, at least up to the age of 65. Scores on the matrices test reach their maximum somewhere about the age of 14 remain relatively constant for about
10 years and then begin to decline slowly, but with remarkable uniformity.

Physical or mental illness does not seriously affect the re-test reliability of the matrices or vocabulary test. In the relatively few cases where it does the cause has usually been traced to temporary toxic effect or to permanent brain damage.

Senile dementia does not appear to be a normal effect of ageing, but rather a pathological condition occurring more frequently as age advances. It appears to affect a person’s recall of acquired information as well as his present output of intellectual activity. Both functions would also appear to fluctuate more in cases of dementia than they do under normal conditions.

**Table 3.2 Revised Order of Problems**

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>4</td>
<td>2</td>
<td>8</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>2.</td>
<td>5</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>3.</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>4.</td>
<td>2</td>
<td>2</td>
<td>8</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>5.</td>
<td>6</td>
<td>1</td>
<td>7</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>6.</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>7.</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>8.</td>
<td>2</td>
<td>6</td>
<td>1</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>9.</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>10.</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>11.</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>12.</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>6</td>
<td>5</td>
</tr>
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</table>
### Table 3.3 Individual Test

<table>
<thead>
<tr>
<th>Percentile</th>
<th>Points</th>
<th>Chronological Age in Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>95</td>
<td>6 6%</td>
<td>19 22 25 28 33 37 39 40 42 44 47 50 52 53 54 54</td>
</tr>
<tr>
<td>90</td>
<td>7 7%</td>
<td>17 20 22 24 28 33 35 36 38 41 44 48 49 49 50 50</td>
</tr>
<tr>
<td>75</td>
<td>8 8%</td>
<td>15 17 19 21 23 26 29 31 33 35 38 42 43 45 46 46</td>
</tr>
<tr>
<td>50</td>
<td>9 9%</td>
<td>13 14 16 17 19 21 22 24 26 29 31 35 37 38 40 41</td>
</tr>
<tr>
<td>25</td>
<td>10 10%</td>
<td>- - 13 14 14 16 17 18 20 23 26 28 30 31 32 33</td>
</tr>
<tr>
<td>10</td>
<td>11 11%</td>
<td>- - - - - 13 13 14 14 15 20 21 23 24 25 26</td>
</tr>
<tr>
<td>5</td>
<td>12 12%</td>
<td>- - - - - - - - - - 13 14 16 18 19 20 21 22</td>
</tr>
</tbody>
</table>

### Table 3.4 The Self Administered or Group Test (children)

<table>
<thead>
<tr>
<th>Percentile</th>
<th>Points</th>
<th>Chronological Age in Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>95</td>
<td>8 8½</td>
<td>38 39 41 43 45 48 50 51 51 52 52 53 53</td>
</tr>
<tr>
<td>90</td>
<td>9 9½</td>
<td>34 36 38 41 43 45 47 49 49 50 50 51 52</td>
</tr>
<tr>
<td>75</td>
<td>10 10½</td>
<td>24 29 32 34 37 39 41 43 45 46 47 48 48</td>
</tr>
<tr>
<td>50</td>
<td>11 11½</td>
<td>18 21 24 28 30 33 35 37 39 41 43 44 44</td>
</tr>
<tr>
<td>25</td>
<td>12 12½</td>
<td>- 14 16 18 20 23 26 29 30 34 35 37 38</td>
</tr>
<tr>
<td>10</td>
<td>13 13½</td>
<td>- - - - - 13 13 15 16 18 22 25 27 28 28</td>
</tr>
<tr>
<td>5</td>
<td>14 14½</td>
<td>- - - - - - - - - - 13 14 15 16 17 19 21 23</td>
</tr>
</tbody>
</table>
Table 3.5 The Self-Administered or Group Test (Adult)

<table>
<thead>
<tr>
<th>Percentile</th>
<th>Chronological Age in Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Points</td>
<td>20 25 30 35 40 45 50 55 60 65</td>
</tr>
<tr>
<td>95</td>
<td>55 55 54 53 52 50 48 46 44 42</td>
</tr>
<tr>
<td>90</td>
<td>54 54 53 51 49 47 45 43 41 39</td>
</tr>
<tr>
<td>75</td>
<td>49 49 47 45 43 41 39 37 35 33</td>
</tr>
<tr>
<td>50</td>
<td>44 44 42 40 38 35 33 30 27 24</td>
</tr>
<tr>
<td>25</td>
<td>37 37 34 30 27 24 21 18 15 13</td>
</tr>
<tr>
<td>10</td>
<td>28 28 25 - - - - - -</td>
</tr>
<tr>
<td>5</td>
<td>23 23 19 - - - - - -</td>
</tr>
</tbody>
</table>

Table 3.6 Retest reliability and intercorrelation of the Progressive Matrices and the Mill Hill Vocabulary scales at different ages

<table>
<thead>
<tr>
<th>Age Range (years)</th>
<th>Matrices Test</th>
<th>Vocabulary Test</th>
<th>Correlation between P.M. and M.H.V. scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Score</td>
<td>Retest reliability</td>
<td>Mean Score</td>
</tr>
<tr>
<td>13+1</td>
<td>41</td>
<td>0.88</td>
<td>34</td>
</tr>
<tr>
<td>Under 30</td>
<td>48</td>
<td>0.93</td>
<td>41</td>
</tr>
<tr>
<td>30-39</td>
<td>37</td>
<td>0.88 P.E &lt; 0.02</td>
<td>33</td>
</tr>
<tr>
<td>40-49</td>
<td>35</td>
<td>0.87</td>
<td>31</td>
</tr>
<tr>
<td>50 and over</td>
<td>29</td>
<td>0.83</td>
<td>31</td>
</tr>
</tbody>
</table>
Table 3.7 Relationship between Percentile Grade and Terman Merrill Intelligence Quotient for a clinic group of 301 children given each test individually

<table>
<thead>
<tr>
<th>Percentile Group</th>
<th>Grade</th>
<th>Progressive Matrices</th>
<th>Terman Merrill I.Q</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(1938)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>95 and over</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>-</td>
<td>Under 73</td>
<td>Under 89</td>
<td>6+</td>
</tr>
<tr>
<td>75 and over</td>
<td>II</td>
<td>-</td>
<td>6+</td>
<td>3+</td>
</tr>
<tr>
<td>Over 25 and</td>
<td></td>
<td>2+</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>under 75</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 and under</td>
<td>IV</td>
<td>9</td>
<td>23</td>
<td>16</td>
</tr>
<tr>
<td>5 and under</td>
<td>V</td>
<td>26</td>
<td>9</td>
<td>1*</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td></td>
<td>37</td>
</tr>
</tbody>
</table>

* Of the individuals with Terman Merill Intelligence Quotient two classes lower than their Matrices Grade 9 had specific defects in reading, speech or education

* Of the individuals with Terman Merill Intelligence Quotient two classes higher than their Matrices Grade 8 were excitable, talkative, social failures or lacking in self control
The precise significance of any observed discrepancy between person's matrices and vocabulary grades can only be determined by further enquiries. It can however be assumed that a Vocabulary grading lower than the matrices arises when a person has not received, or for some reason has not been able to acquire, the general information and command of the English language his intellectual capacity warrants. On the other hand it can be assumed that a Matrices grading lower than the Vocabulary arises when a person is suffering from fatigue, temporary intellectual impairment, has deteriorated mentally or has for some reason excessively directed his available mental activity to the acquisition of verbal knowledge.

Discrepancies in grade between the two tests should always be investigated. A discrepancy of one grade may or may not be significant, particularly if the persons score on one test happens, as in the example quoted, to lie at or near the percentile point separating two grades. A discrepancy of two or more grades always indicates the need for a further investigation designed to elucidate its psychological significance, the particular significance to be attached to such a discrepancy can often be assessed more accurately if the coloured matrices is used as an individual tests.
3.6.3 Achievement Test of Kannada Language

To obtain the achievement scores of students in Kannada subject of IX standard, the investigator constructed an achievement test. The procedure of the construction of achievement test is as follows:

a) **Construction of an Achievement test in Kannada for IX standard students**: In all, 100 items were listed under three areas of Prose, Poetry and Grammar.

b) **Construction and Pooling of Test Items**: As the test was to be administered to the students who studying in secondary schools of Ramdurg Taluk. The test items in Kannada were constructed only for the Second Semester First Language as Kannada syllabus of IX standard of Karnataka State.

The following sources were consulted for construction and/or pooling of test items in Kannada.


ii) Review of Research of theoretical underpinning

iii) Other similar tools

iv) Requesting representative teacher of Kannada to write test items (such a process ensures content validity)
v) Personal experience of the investigator, subject teacher and guidelines of research guide

**Preparation of Blue Print:** A three dimensional blue print showing coverage of content, instructional objectives and types of items were prepared by referring the IX standard test book of Kannada and in consultation with the experts in the Department of education and Personal Experience. The blue print is as follows:

**Objective Wise Weightage:**

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Objectives</th>
<th>Marks</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)</td>
<td>Knowledge</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>ii)</td>
<td>Comprehension</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>iii)</td>
<td>Expression</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>iv)</td>
<td>Appreciation</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

**Content Wise Weightage**

<table>
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<th>Sl.No</th>
<th>Objectives</th>
<th>Marks</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)</td>
<td>Prose</td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td>ii)</td>
<td>Poetry</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>iii)</td>
<td>Grammar</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
**Question Type Weightage**

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Objectives</th>
<th>Marks</th>
<th>Percentage</th>
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<td>100</td>
</tr>
<tr>
<td></td>
<td>weightage</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Screening of Test Items:**

The test was referred to representative of high school teachers. This was done with a view to retain of the synonymous items and the items which could fit into the framework of the competency item, which was vague were discarded and remaining items were edited to make it clear.

**Writing of Directions.**

Suitable directions were given on the top of the each items in each competency, further, the made of giving response to all various items of the competency was illustrated with specific example.

**Tryout:**

Before constructing the test items the investigator was done, although study of the methodology and objectives of Kannada.
Initially 112 items were prepared. The test was tried out in two secondary schools in Ramdurg Taluk. In order to administer the test, the co-operation of the schools teachers were sought. The students were specially given to understand that

(i) There was two-hours time limit for completing the test
(ii) The score of the test was used only for research purpose.
(iii) The honest and accurate answers of the students to test item helped the study in developing a reliable test in Kannada.

The test was administered to 100 students studying in IX standard.

**Scoring:** The test items were of objective type (multiple choice) questions. Therefore one mark was awarded for each correct answer in objective type answers. Thus, the theoretical range for sum of scores will be 0-100. Sum of the item scores gave the scores on performance in Kannada. The score for each student was calculated separately.

**Item Analyses:** Each test item was subjected to analyses in item of (i) Difficulty value, and (ii) Item validity. For this purpose the score of 100 IX standard students were taken as tryout for the study. The
score obtained by students (n=100) were first arranged in the descending order. The two groups - high scoring' and 'low scoring' each composed of 27 percent i.e. 27 of the students of the sample 100, formed the basis for the computation of validity and difficulty indices.

For determining item validity, numerous indices and procedures were available. In the present study, the correlation approach i.e. correlating the ‘point’ biserial correlation method (Guilford, 1954) was used. The choice of this method was based on two consideration: (i) one of the variables namely item score is in the form of genuine dichotomy (-1 or 0); (ii) Labour scoring “abac” is developed by Flanagan for determining estimates of rpbis. The difficulty values of each test item were determined by using the following formula:

\[ D = \frac{U + L}{2} \]

were

D = Difficulty value of the item
U = Percentage of student scoring the correctly in the upper or higher scoring group and
L=Percentage of the students scoring the correctly in the lower or low scoring group.

The difficulty values of the items are shown in the table 1.3

**Final Tool:**

Item with 100 percent and 0 percent difficult value and item with less than 0.25 validity coefficient were deleted (Thronike, 1956)

As a result of the first analysis – determination of “DQ” values and as a result of the second analyses determination of ‘r’ values out of the total number of 112 items constructed by the investigator 12 items were rejected. The final tool consisted of 100 items in all. The directions for using the test were found to be work well and were retained without any modification. (See Appendix- III)

**C) Reliability of the Achievement Test:**

i) **Coefficient of the stability:** The coefficient of stability of the achievement test was determined by the test-re-test method. For this purpose, the achievement test was re-administered to random sample of 10 students out of 100 involved in the first tryout two weeks for after the first administration. Them
correlation between the test as re-test scores of n the achievement test was found to be 0.8502 which is quite significant at 0.05 %. This implies that the achievement test has stability reliability

ii) Coefficient of Consistency: The coefficient consistence of the achievement test was determined by the spilt half method. For this purpose, scores obtained on re-administration of the achievement test to 10 students were involved for determining stability reliability value were used. The total scores were divided into two halves one relating to add numbered items and the other to even numbered items. The obtained coefficient of correlation between the score on the halves was corrected for full length of achievement test by means of Spearman-Brown prophecy formula (Garrett, 2966) the coefficient of consistency of the achievement test was found to be 0.9197 for full length of scale, which is significant at 0.05 level. This implies that the achievement test has constancy reliability.
d) **Validity of the achievement test:**

i) **Intrinsic Validity:** Intrinsic validity of the achievement test was computed from its reliability coefficient (Guilford, 1954, p. 399) the range of validity coefficients was between 0.9747 and 0.9537 which speaks of the intrinsic validity of the test

ii) **Content Validity:** Five Kannada teachers of IX standard acted as judges in establishing content validity of achievement test. The examined the test items, instructions and the scoring procedure. The judges were fully satisfied with the relevance of the test items and the scoring procedures. There were also satisfied with the relevance of the test items and the scoring procedure. They were also satisfied with the adequate coverage of the content of Kannada language of IX standard of 2nd semester. This implies that the achievement test in Kannada language is comprehensive and relevant.

3.7 **Procedure of Data Collection**

Investigator personally visited to the Government and Private schools and Emotional intelligence test was administered to the students. Intelligence Quotient test was administered to students and Achievement test was prepared by the investigator and
administered to the students. The data was collected from 500 IX standard students of Ramdurg Taluk.

3.8 Methods of Analysis of Data

The investigator for the present study will use the following statistical analyses.

1. Percentage Analysis
2. Descriptive Analysis
3. Differential Analysis
4. Correlation Analysis
5. Regression Analysis
6. Path analysis

The next chapter is dealt with data analyses and interpretation.