CHAPTER–3

RESEARCH METHOD, DESIGN AND PROCESS

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CHAPTER–3

RESEARCH METHOD, DESIGN AND PROCESS

3.1 Introduction

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. It is necessary for research to know not only the research methods/techniques but also the methodology (C.R. Kothari & Gauraw Garg, 2014) Methodology is generally guidance for solving a problem with specific components such as phases and tools (Robson.W.1997, Kelein, H.K. & R. Hirscheim, 2001). The research process can be reviewed as an overall scheme of scientific activities in which scientists engage in order to produce knowledge. The research process consists of stages like problem, objectives, Research design, Tools, Sample, procedure, statistical framework and data collection.

The research design is like a mariner compass for a research or to stay on course and stay focused on the objective of research. The research follows the research steps meticulously to minimize error in the research.

The present research chapter describes the design of the research and highlights the details about the research procedure followed in conducting the research. As such it is an important part of the research and needs to be design and carried out systematically to arrive at accurate judgments and this section bring out explicitly how the research work has been carried out and which types of population is considered in this research, which type of sampling method, were undertaken for the research, how the independent variables are measured and how to data is collected and statistical techniques used for analysis of data etc. In order to achieve the objectives and the stated corresponding hypotheses, the following plan of the research has been followed.
3.2 Problem of Research

In the research, the First and Foremost step happens to be that of selecting and properly defining a research problem and research problem may be taken from a research guide in this connection. We often quite “We all hear that a problem clearly stated is a problem half solve d”. In many questions helps research problem some question like. I.e. what data is to be collected? What characteristics of data are relevant? What techniques are to be used the purpose? And similar other questions cross one’s mind of researcher who can well design his strategy and find answers to all such question only when the research problem has been well defined so that defining a research problem properly is a pre requisite for any study and is a first step of most. The Research problem of this research as follows.

“SOCIAL INTELLIGENCE, FAMILY RELATIONSHIP AND LEARNING BEHAVIOUR IN ADOLESCENT STUDENTS.”

3.3 Objectives of the Research

According to research problem is formulated for the research objective which is as follows

1) To investigate the main effect of social intelligence, family relationship and learning behaviour in the context of sex, types of family, birth order and medium variables in adolescent students.

2) To investigate the internal effect of social intelligence, family relationship and learning behaviour in the context of sex and types of family variables in adolescent students.

3) To investigate the internal effect of social intelligence, family relationship and learning behaviour in the context of sex and birth order variables in adolescent students.
4) To investigate the internal effect of social intelligence, family relationship and learning behaviour in the context of type of family and birth order variables in adolescent students.

5) To investigate the internal effect of social intelligence, family relationship and learning behaviour in the context of sex and medium variables in adolescent students.

6) To investigate the internal effect of social intelligence, family relationship and learning behaviour in the context of family types and medium variables in adolescent students.

7) To investigate the internal effect of social intelligence, family relationship and learning behaviour in the context of birth order and medium variables in adolescent students.

8) To investigate the internal effect of social intelligence, family relationship and learning behaviour in the context of sex, types of family and birth order variables in adolescent students.

9) To investigate the internal effect of social intelligence, family relationship and learning behaviour in the context of sex, types of family and medium variables in adolescent students.

10) To investigate the internal effect of social intelligence, family relationship and learning behaviour in the context of sex, birth order and medium variables in adolescent students.

11) To investigate the internal effect of social intelligence family relationship and learning behaviour in the context of types of family, birth order and medium variables in adolescent students.
12) To investigate the internal effect of social intelligence, family relationship and learning behaviour in the context of sex, types of family, birth order and medium variables in adolescent students.

13) To investigate relationship between social intelligence and family relationship.

14) To investigate relationship between social intelligence and learning behaviour.

15) To investigate relationship between family relationship and learning behaviour.

3.4 Research Hypothesis

In order to objective of the following hypothesis are formulates for this research.

1) There will be no significant main effect of social intelligence in the context of sex variable in adolescent students.

2) There will be no significant main effect of social intelligence in the context of types of family variable in adolescent students.

3) There will be no significant main effect of social intelligence in the context of birth order variable in adolescent students.

4) There will be no significant main effect of social intelligence in the context of medium variable in adolescent students.

5) There will be no significant internal effect of social intelligence in the context of sex and types of family variables in adolescent students.

6) There will be no significant internal effect of social intelligence in the context of sex and birth order variables in adolescent students.

7) There will be no significant internal effect of social intelligence in the context of sex and medium variables in adolescent students.
8) There will be no significant internal effect of social intelligence in the context of types of family and birth order variables in adolescent students.

9) There will be no significant internal effect of social intelligence in the context of types of family and medium variables in adolescent students.

10) There will be no significant internal effect of social intelligence in the context of birth order and medium variables in adolescent students.

11) There will be no significant internal effect of social intelligence in the context of sex, types of family and birth order variables in adolescent students.

12) There will be no significant internal effect of social intelligence in the context of sex, types of family and medium variables in adolescent students.

13) There will be no significant internal effect of social intelligence in the context of types of family, birth order and medium variables in adolescent students.

14) There will be no significant internal effect of social intelligence in the context of sex, birth order and medium variables in adolescent students.

15) There will be no significant internal effect of social intelligence in the context of sex, types of family, birth order and medium variables in adolescent students.

16) There will be no significant main effect of family relationship in the context of sex variable in adolescent students.

17) There will be no significant main effect of family relationship in the context of types of family variable in adolescent students.

18) There will be no significant main effect of family relationship in the context of birth order variable in adolescent students.

19) There will be no significant main effect of family relationship in the context of medium variable in adolescent students.
20) There will be no significant internal effect of family relationship in the context of sex, types of family variables in adolescent students.

21) There will be no significant internal effect of family relationship in the context of sex and birth order variables in adolescent students.

22) There will be no significant internal effect of family relationship in the context of sex and medium variables in adolescent students.

23) There will be no significant internal effect of family relationship in the context of types of family and birth order variables in adolescent students.

24) There will be no significant internal effect of family relationship in the context of types of family and medium variables in adolescent students.

25) There will be no significant internal effect of family relationship in the context of birth order and medium variables in adolescent students.

26) There will be no significant internal effect of family relationship in the context of sex, types of family and birth order variables in adolescent students.

27) There will be no significant internal effect of family relationship in the context of sex, types of family and medium variables in adolescent students.

28) There will be no significant internal effect of family relationship in the context of types of family, birth order and medium variables in adolescent students.

29) There will be no significant internal effect of family relationship in the context of sex, birth order and medium variables in adolescent students.

30) There will be no significant internal effect of family relationship in the context of sex, types of family, birth order and medium variables in adolescent students.

31) There will be no significant main effect of learning behaviour in the context of sex variable in adolescent students.
32) There will be no significant main effect of learning behaviour in the context of types of family variable in adolescent students.

33) There will be no significant main effect of learning behaviour in the context of birth order variable in adolescent students.

34) There will be no significant main effect of learning behaviour in the context of medium variable in adolescent students.

35) There will be no significant internal effect of learning behaviour in the context of sex and types of family variables in adolescent students.

36) There will be no significant internal effect of learning behaviour in the context of sex and birth order variables in adolescent students.

37) There will be no significant internal effect of learning behaviour in the context of sex and medium variables in adolescent students.

38) There will be no significant internal effect of learning behaviour in the context of types of family and birth order variables in adolescent students.

39) There will be no significant internal effect of family learning behaviour in the context of types of family and medium variables in adolescent students.

40) There will be no significant internal effect of learning behaviour in the context of birth order and medium variables in adolescent students.

41) There will be no significant internal effect of learning behaviour in the context of sex, types of family and birth order variables in adolescent students.

42) There will be no significant internal effect of learning behaviour in the context of sex, types of family and medium variables in adolescent students.

43) There will be no significant internal effect of learning behaviour in the context of types of family, birth order and medium variables in adolescent students.
44) There will be no significant internal effect of learning behaviour in the context of sex, birth order and medium variables in adolescent students.

45) There will be no significant internal effect of learning behaviour in the context of sex, types of family, birth order and medium variables in adolescent students.

46) There will be no significant correlation between social intelligence and family relationship.

47) There will be no significant correlation between social intelligence and learning behaviour.

48) There will be no significant correlation between family relationship and learning behaviour.

3.5 Research Variables

The following Research variables were selected on the basis of the research which is as follows.

3.5.1 Independent Variables

In present research total four independent variables are as under.

<table>
<thead>
<tr>
<th>(A)</th>
<th>Sex</th>
<th>Boys (A₁) and Girls (A₂)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(B)</td>
<td>Types of Family</td>
<td>Joint family (B₁) and Divided family (B₂)</td>
</tr>
<tr>
<td>(C)</td>
<td>Bird order</td>
<td>Firstborn (C₁) and Second born (C₂)</td>
</tr>
<tr>
<td>(D)</td>
<td>Medium</td>
<td>Gujarati (D₁) and English (D₂)</td>
</tr>
</tbody>
</table>

3.5.2 Dependent variables

A Total score of social intelligence, family relationship and learning behaviour are relying on questionnaires.
(1) Social intelligence score.
(2) Family relationship score.
(3) Learning behaviour score.

3.6 Research Design

The aim of present research is social intelligence, family relationship and learning behaviour in adolescent students for these total 640 adolescent students will be taken as a sample. In present study to check the main and internal effect of four variables to collect the data is 2x2x2x2 factorial designed. To make the research Design are as under.

Table No. 3.1

Factorial Design (2 x 2 x 2 x 2) (N=640)

<table>
<thead>
<tr>
<th></th>
<th>A₁ Boys</th>
<th></th>
<th>A₂ Girls</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B₁ Joint Family</td>
<td>B₂ Divided Family</td>
<td>B₁ Joint Family</td>
<td>B₂ Divided Family</td>
</tr>
<tr>
<td>A₁ Boys</td>
<td>C₁ First Born</td>
<td>C₂ Second Born</td>
<td>C₁ First Born</td>
<td>C₂ Second Born</td>
</tr>
<tr>
<td>A₂ Girls</td>
<td>C₁ First Born</td>
<td>C₂ Second Born</td>
<td>C₁ First Born</td>
<td>C₂ Second Born</td>
</tr>
<tr>
<td></td>
<td>D₁ Guajrati Medium</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>D₂ English Medium</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
</tbody>
</table>
Where

A = Sex
   A_1 = Boys
   A_2 = Girls

B = Types of Family
   B_1 = Joint Family
   B_2 = Divided Family

C = Birth order
   C_1 = First Born,
   C_2 = Second Born

D = Medium
   D_1 = Gujarati Medium
   D_2 = English Medium

and,

A_1 B_1 C_1 D_1 = Boys, Joint Family, First Born, Gujarati Medium
A_1 B_1 C_2 D_1 = Boys, Joint Family, Second Born, Gujarati Medium
A_1 B_2 C_1 D_1 = Boys, Divided Family, First Born, Gujarati Medium
A_1 B_2 C_2 D_1 = Boys, Divided Family, Second Born, Gujarati Medium
A_1 B_1 C_1 D_2 = Boys, Joint Family, First Born, English Medium
A_1 B_1 C_2 D_2 = Boys, Joint Family, Second Born, English Medium
A_1 B_2 C_1 D_2 = Boys, Divided Family, First Born, English Medium
A_1 B_2 C_2 D_2 = Boys, Divided Family, Second Born, English Medium
A_2 B_1 C_1 D_1 = Girls, Joint Family, First Born, Gujarati Medium
A_2 B_1 C_2 D_1 = Girls, Joint Family, First Born, Gujarati Medium
A_2 B_2 C_1 D_1 = Girls, Divided Family, First Born, Gujarati Medium
A_2 B_2 C_2 D_1 = Girls, Divided Family, Second Born, Gujarati Medium
A_2 B_1 C_1 D_2 = Girls, Joint Family, First Born, English Medium
A_2 B_1 C_2 D_2 = Girls, Joint Family, Second Born, English Medium
A_2 B_2 C_1 D_2 = Girls, Divided Family, First Born, English Medium
A_2 B_2 C_2 D_2 = Girls, Divided Family, Second Born, English Medium
3.7 Sample of the Research

Present study will take 640 data select by randomly whose age 13 to 17. (According to manual). Total 1000 data fill up from different school of Amreli district Gujarat (India) in which study finally randomly selected 640 data. The total participate consisting of 640 participates in 320 boys, 160 joint family and 160 divided family in 80 boys who are first born of parents and 80 boys who are second born of parents, according to medium 40 Gujarati medium and 40 English medium boys selected as a participant. In that way 320 of girls 160 joint family and 160 divided family in 80 girls who are girls first born of parents and 80 girls who are second born of parents, according to medium 40 Gujarati medium girls and 40 English medium girls selected as a participated in this research.
3.8 Research Tools

The main purpose of the study is social intelligence, family relationship and learning behavior in adolescent students. For this purpose the following scale will be considered with their reliability, validity and objectivity mentioned in their respective manuals. Three scales will be used in present study.

1) Individual Data Sheet

According to the aim of the present study here individual data sheet will be prepared in which name, age, sex (boys or girls), type of family (joint or divided family), birth order (first born or second born) and medium (Gujarati or English).

2) Social Intelligence Scale

To check the social intelligence of the subject here social intelligence scale developed by Dr. S. Mathur (2007) in English language and translated into Gujarati by Dr. Yogesh A. Jogsan (2013). This scale has total 50 sentences which measured high social intelligence and low social intelligence. In which sentence no, 1, 4, 6, 8, 10, 13, 14, 15, 16, 18, 20, 22, 24, 26, 28, 29, 33, 37, 39, 41, 42, 44, 45 and 47 and other are sentence number measure low social intelligence. This is three point scales. Here is yes, uncertain and No option were given scores 2, 1, 0 and low social intelligence yes, uncertain and no option were given scores 0, 1, 2. Reliability of present scale has checked by test-retest method that has 0.87. Validity of this scale has established 0.78 by N. K. Chand and Usha Ganesh.

3) Family Relationship

To check the family relationship of the subject here family relationship scale developed by Dr. (Smt.) Alka. Devid (1997) in Hindi language and translated into Gujarati by Dr. Yogesh A. Jogsan (2013). This scale has total 40 sentences which measured in good relation and poor relation. Each part has 20 sentences. This scale good relation sentence in which sentence number 5, 12, 13, 14, 15, 16, 19, 20, 21, 23, 25, 29, 32,
35, 36, 37, 38 and 40 are good relation and other are poor relation. This is three point scales. Here in good relation sentence always, some time and never options were given scores 2, 1 and 0 and poor relation sentence always, sometimes and never option were given scores 0, 1, 2 respectively. Reliability of present scale. Checked by two methods in which 0.72 by half split and test-retest has 0.76. Validity 0.52 established by the Dr. G. Tivari.

4) Learning Behaviour Scale

To check the learning behaviour of subject here learning behaviour scale developed by P.A. Mc Dermott, L. F. Green, J. M. Francis & D. S. Stott (1992) translated into Gujarati by Dr. Yogesh A. Jogsan(2013). This scale has 29 sentences which measured learning behaviour. This is three point scale, all are positive sentence. Here in learning behaviour sentence never, sometime and always option were given scores 0, 1 and 2. To check and validity used for factors.

<table>
<thead>
<tr>
<th>Competence Motivation (CM)</th>
<th>0.92</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude Towards Learning (AL)</td>
<td>0.91</td>
</tr>
<tr>
<td>Attention / Persistence (AP)</td>
<td>0.92</td>
</tr>
<tr>
<td>Strategy/Flexibility (SF)</td>
<td>0.93</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Competence Motivation (CM)</th>
<th>0.83</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude Towards Learning (AL)</td>
<td>0.83</td>
</tr>
<tr>
<td>Attention / Persistence (AP)</td>
<td>0.83</td>
</tr>
<tr>
<td>Strategy/Flexibility (SF)</td>
<td>0.83</td>
</tr>
</tbody>
</table>
### Internal Consistency – I

<table>
<thead>
<tr>
<th>LSB Factor</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competence Motivation (CM)</td>
<td>0.85</td>
<td>0.85</td>
</tr>
<tr>
<td>Attitude Towards Learning (AL)</td>
<td>0.87</td>
<td>0.80</td>
</tr>
<tr>
<td>Attention/Persistence (AP)</td>
<td>0.85</td>
<td>0.80</td>
</tr>
<tr>
<td>Strategy/Flexibility (SF)</td>
<td>0.76</td>
<td>0.70</td>
</tr>
</tbody>
</table>

### Internal Consistency – II

<table>
<thead>
<tr>
<th>LSB Factor</th>
<th>Male 5-11 (N=817)</th>
<th>Female 12-17(N=683)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competence Motivation (CM)</td>
<td>0.85</td>
<td>0.85</td>
</tr>
<tr>
<td>Attitude Towards Learning (AL)</td>
<td>0.83</td>
<td>0.86</td>
</tr>
<tr>
<td>Attention/Persistence (AP)</td>
<td>0.85</td>
<td>0.84</td>
</tr>
<tr>
<td>Strategy/Flexibility (SF)</td>
<td>0.74</td>
<td>0.74</td>
</tr>
</tbody>
</table>

### Validity of Learning Behaviour Scale

<table>
<thead>
<tr>
<th></th>
<th>CM</th>
<th>AL</th>
<th>AP</th>
<th>SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability</td>
<td>0.39</td>
<td>0.22</td>
<td>0.27</td>
<td>0.11</td>
</tr>
<tr>
<td>Read</td>
<td>0.35</td>
<td>0.21</td>
<td>0.25</td>
<td>0.12</td>
</tr>
<tr>
<td>Math</td>
<td>0.36</td>
<td>0.22</td>
<td>0.23</td>
<td>0.08</td>
</tr>
<tr>
<td>T-read</td>
<td>0.52</td>
<td>0.47</td>
<td>0.51</td>
<td>0.26</td>
</tr>
<tr>
<td>ADHD</td>
<td>-0.50</td>
<td>-0.53</td>
<td>-0.70</td>
<td>-0.63</td>
</tr>
<tr>
<td>Avoids</td>
<td>-0.34</td>
<td>-0.49</td>
<td>-0.31</td>
<td>-0.04</td>
</tr>
</tbody>
</table>
3.9 The Data Collection

This section brings out the various organizations in this the study was undertaken and under which guidance the study was authorized Saurashtra University, Department of Psychology, Rajkot in Gujarat State (India) authenticated the research work and under the guidance of Dr. Y. A. Jogsan Assistance Professor department of Psychology Saurashtra University.

The participant of present study will be 640 subjects total 1000 data fill up from different areas & schools in which randomly selected 640 data from different areas Amreli district from Gujarati State.

Population of general category from of Saurashtra. Amreli, Junagadh etc. region and also population of various organizations working in this region have been considered for the study. The group was randomly selected by administering the testing inventories. The Library of Saurashtra University have largely benefited in collection of the historical evidence of psychology.

The aim of present study is social intelligence, family relationship and learning behaviour in adolescent students. For this purpose the following test tools were considered with their reliability, validity and objectivity mentioned in their respective manuals. The present study three (03) scales used in this research. Here used to collect the data. For social intelligence, the scale for social intelligence was developed by Dr. S. Mathur used in this research used to collect data for social intelligence, the scale for family relationship was developed by Dr. (Smt.) Alka Devid used in this research and used to collect the date for learning behaviour the scale for learning behaviour was developed by P.A. McDermott, L.F. Green, J. M. Francis & D. S. Stott used in this research. So here the participated of present study will be 640 participants, randomly selected from different schools of Amreli district of Gujarat State (India). The total participates consisting. 640 samples in 320 boys, 160 joint family and 160 divided family in 80 boys who are first born of parent’s and 80 boys who are second
born of parent’s according to medium 40 Gujarati medium and 40 English medium adolescent students selected as a participant in that way 320 girls, 160 joint family and 160 divided family in 80 girls who are first born of parent’s and 80 girls who are second born of parent’s according to medium. 40 Gujarati medium and 40 English medium students were taken for this research.

3.10 Statistical Techniques

The 640 participant of present study randomly selected from different area of Amreli district, Gujarat State, India. So collect the data as 2x2x2x2 factorial designed. Then after collect the data to choose statistical technique for interpretation of the results. Here that used the ‘F’ test ANOVA was applied to check significant of main and internal effect social intelligence, family relationship and learning behaviour in adolescent students also use the L.S.D. (Least significance difference) was used and Pearson’s was used to check the correlation of social intelligence, family relationship and learning behaviour.

3.10.1 ANOVA

Analysis of variance (ANOVA) is an extremely useful technique concerning researches in the filed of psychology this technique is used when multiple sample cases are involved. An ANOVA is any statistical test in which the test statistic has an F-distribution under the null hypothesis. It is most often used when comparing statistical models that have been – fitted to a data set, in order to identify the model that best fits the population from which the data where sampled professor R.A. Fisher was the first man to use term ‘variance’ and, in fact it was he who developed a very elaborate theory concerning ANOVA. Explaining it usefulness in practical filed after professor Snedecor and many others contributed to the development of this technique. The ANOVA is essentially a procedure for testing the difference among different groups of data on homogeneity.
“The essence of ANNOVA is that the total amount of variation in set of data is broken down into two types. That amount which can be attributed to chance and that amount which can be attributed to specified causes” (C.R.Cothari & Gaurav Garv, 2014). There may be variation between samples and also within sample items.

3.10.2 LSD (Least significant difference).

Fisher’s LSD 1935 is a method for comparing treatment group mean of the ANOVA null hypothesis of equal means has been rejected using the ANOVA F-test. If the F-test fails to reject the null hypothesis procedure should not be used. The main idea of the LSD to complete means had been the only means to be compared and to declare significant.

3.10.3 Correlation (r)

The correlation is one of the most common useful static's. The familiar measure of two variables is the product-moment correlation coefficient or “Pearson correlation” Karl Pearson’s coefficient of correlation is not affected by change in scale. Unlike co-variance it can be used to compare the relationship between two pair of variables. It is a unit free measure of relationship between two variables. Correlation coefficient a numerical value that indicates the degree and direction of relationship between two variables and takes values in 1 (perfect or strong positive relationship) to 0.00 (no relationship) to –1 (perfect or strong negative relationship).

3.11 Chapter summary

In this chapter problem of research, objective, hypothesis, tools and statistical techniques were described. Result and discussion will be in the analysis, result discussion and interpretation.