Chapter 4

Data Analysis and Interpretation

4.1 Introduction

This chapter deals with the data, which is collected as the methodology described in the previous chapter. The researcher tries to fulfil the objectives, test the previously taken hypotheses and try to interpret the gotten results. This chapter is the combination of statistical operations on collected data, creativity and in-depth knowledge of the researcher. So, analysing the data is the soul of the research.

The basic purpose of data analysis is to reduce data into a simple and interpretable form so that inferences may be drawn from it (Kothari, 2004). Analysis of data is a structured and systematic procedure of categorizing, arranging, ordering and summarizing the data to discover facts and forgetting answers related to the research purpose.

Importance of this chapter is that this chapter shows the uniqueness, authenticity and quality of the research. In this chapter the hypotheses are tested to fulfill the objectives. This chapter can portray a basic view of the in-depth knowledge and creativity of the researcher.

4.2 Analysis of the Data

In the present study, parametric statistics have been used. The basic assumption behind the parametric statistic is that data must be normally distributed (sheskin, 2000; Naideem & Karen, 2007; Field, 2009; Ghasemi & Zahediasl, 2012).Keeping this viewpoint in mind the researcher checked the nature of data for the variables under the study.

Normal Probability curve:

In the present research, the distribution of the data has been checked with the help of Normal Probability curve (NPC). The property of the NPC is that the mean, median and mode all lie at the same midpoint of the distribution and their values numerically equal (Garrett, 2009).

Independent t-test:

Independent t-test will be used to compare the means of two independent groups (Gender: Male/ Female) and (Type of Group: Science Group/ Humanities Group), in order to determine whether there is statistical evidence that the associated population means are significantly different.

Some assumptions have to be fulfilled for using independent t-test. These assumptions are as follows:

1. Variables measured (predictive variable – academic anxiety and criterion variable- academic achievement) should be in ratio or interval scale.
2. Independent variable should consist of two categorical, independent groups.
   For this study, the independent variables that meet this criterion include gender (2 groups:male or female) and type of group (2 groups: Science and Humanities)
3. Data should be normally distributed and there is no significant outlier present.
4. There needs to homogeneity of variances. For the present study this assumption has beentested is SPSS V.26 using Levene"s test for homogeneity of variances.
5. Criterion Variable (Academic Achievement) should be approximately normally distributed for each group of the Predictive variable (Life Skill). For the present study, the normality has been checked through the Shapiro-Wilk test of normality in SPSS V.26.

Pearson's Product Moment Correlation

Pearson product moment correlation will be used to study the relationship between the variables. In the present study, it is used to know the relationship between predictive variables (Life skills) and criterion variable (academic achievement).

Some assumptions have to be filled for using Pearson"s Product Moment Correlation. These assumptions are as follows:

1. Variables measured (predictive variable- life skill and criterion variable- academicachievement) should be in ratio or interval scale.
2. There should be linear relationship between the variables (predictive and criterion) tobe correlated.
3. Data should be normally distributed and there is no significant outlier present.
4. Homoscedasticity should be there i.e. the spread of scores of the variables must beapproximately the same at all levels of the variables.

All the assumptions of coefficient of correlation were fulfilled, so Pearson product moment correlation was applied in the present study.

4.3 Objectives and Hypotheses wise Analysis and Interpretation of Results

4.3.1 Objective 1

To study the life skill score of pupil teachers of RIE, NCERT, Bhopal.

Analysis

In this study, life skill score is taken as predictive variable. Number of sample (N), mean andstandard deviation (SD) of this variable in the following-

Table 4.1 *Study of Life skill score of pupil teachers*

Types of variable	Name of variable	N	Mean	SD
Predictive Variable	Life Skill Score	180	80.106	11.648

Having 180 sample numbers, the life skill score shows its mean and standard deviation 80.105 and 11.648 respectively. The value 11.648 of standard deviation of Life skill score depicts that the score may deviate from the mean scores of 80.105 on both the sides (positive and negative) of the mean. With the help of SPSS software it is concluded that life skill score follows Normal Probability Curve (NPC). The diagram is in the following-

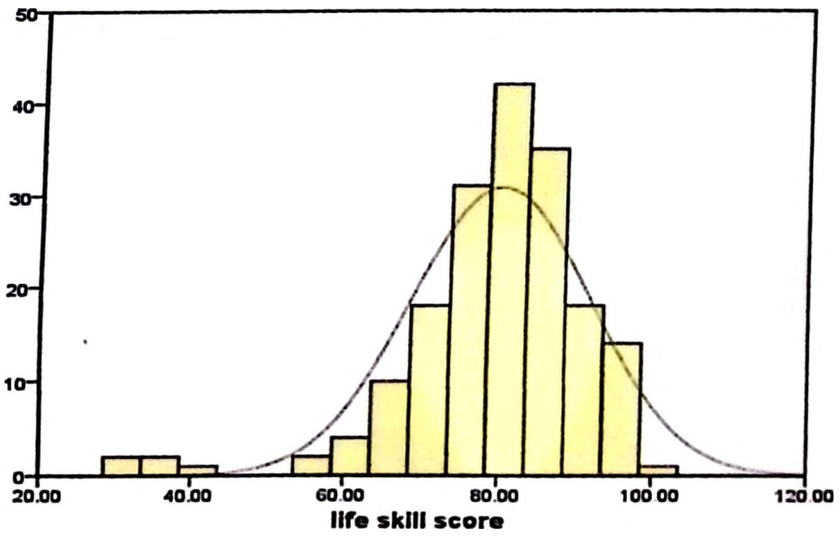

Figure 4.1: *Histogram of Life skill score follows Normal Probability Curve*

The life skill score with Normal Probability Curve with mean 80.106 and standard deviation11.648 respectively follows NPC.

4.3.2 Objective 2

To study the academic achievement score of pupil teachers of RIE, NCERT, Bhopal.

Analysis

In this study, academic achievement score is taken as criterion variable. Number of sample (N),mean and standard deviation (SD) of this variable in the following-

Table 4.2 ***Study of Academic Achievement score of pupil teachers***

Types of variable	Name of variable	N	Mean	SD
Criterion Variable	Academic Achievement	180	82.774	8.375

Having 180 sample numbers, the academic achievement score shows its mean and standard deviation 82.774 and 8.375 respectively. The value 8.375 of standard deviation of academic achievement score depicts that the score may deviate from the mean scores of 82.774 on both thesides (positive and negative) of the mean. With the help of SPSS software it is concluded that lifeskill score follows Normal Probability Curve (NPC). The diagram is in the following-

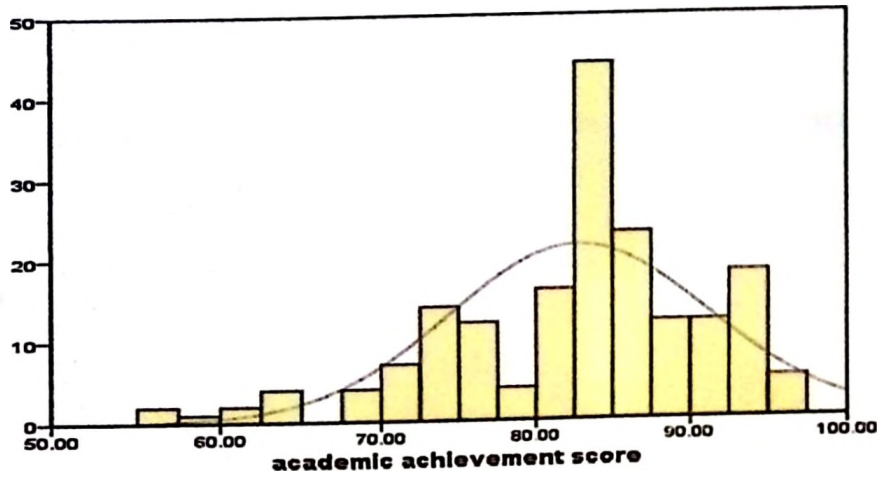

Figure 4.2: ***Histogram of Academic Achievement Score follows Normal Probability Curve***

The academic achievement score with its mean and standard deviation 82.774 and 8.375 respectively follows NPC.

Therefore, it is clear from the perusal of table 4.2 that the data for the entire predictive variable (Life skill score) and criterion variable (academic achievement) have fulfilled the criteria to be considered as normally distributed.

4.3.3 Objective 3

To compare the mean scores of the life skill scores of male and female pupil teachers of RIE, NCERT, Bhopal.

Life Skill Score on the basis of Genders

Descriptive study of the life skill score of male and female pupil teachers of RIE, NCERT, Bhopal is in the following-

Table 4.3 ***Study on Life Skill Score on the basis of Genders***

Gender	Number of Pupil teachers	Mean	Standard Deviation(SD)
Male	56	82.393	12.275
Female	124	79.0726	11.253
Total	180	80.106	11.648

If the above values can be represented as a bar chart, the figure will be as in the next page-

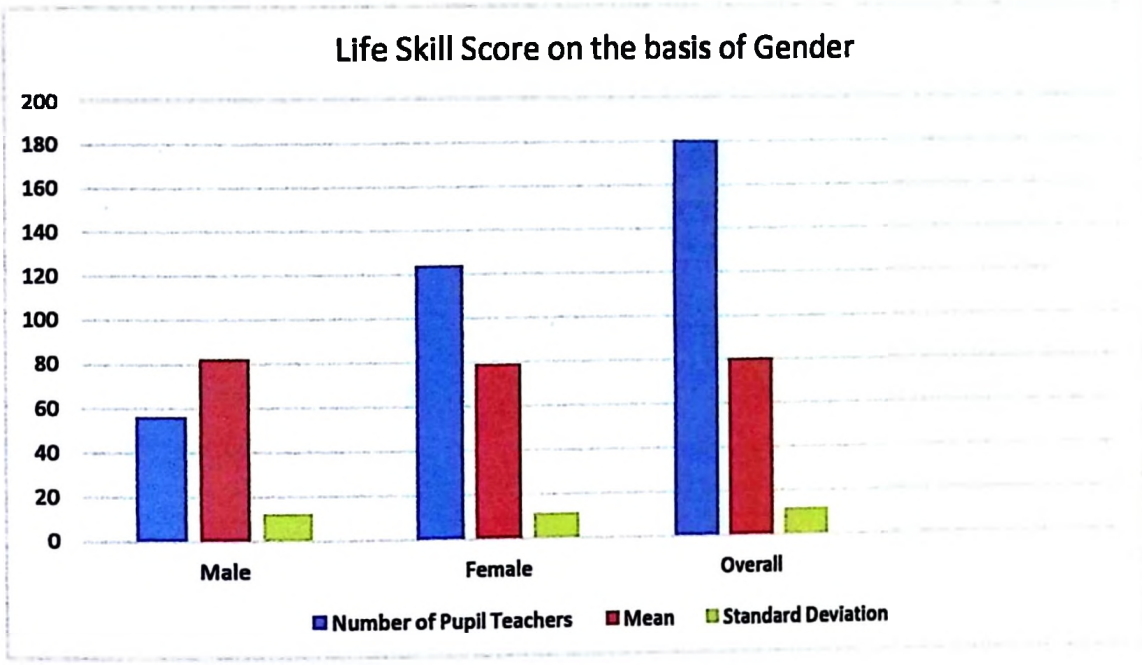

Figure 4.3: ***Bar chart on Life Skill Score on the basis of Genders***

Hypothesis 1 (Ho1)

There is no significant difference in the mean scores of life skill score between male and female pupil teachers of RIE, NCERT, Bhopal.

Analysis

There are two independent groups i.e. male group and female group. So, independent t–test will be applied on it. The t-score with degree of freedom, p-value and significance level is noted as follow-

Table 4.4 ***Showing differences in Life Skill score in terms of Gender***

Gender	Number of pupil teachers (n1 & n2)	Mean (M)	Standard Deviation (SD)	t-score	Degree of freedom (n1-1) + (n2-1)	p-value	Significance at 0.05 level
Male	56	82.393	12.275	0.218	178	0.827	Not significant
Female	124	79.073	11.253				

Interpretation

The table 4.4 says that the result is not significant at 0.05 level. So there is no significant difference in the mean scores of life skill scores between two independent groups i.e. male and female pupil teachers of RIE, NCERT, Bhopal. Therefore, null hypothesis (H01) is not rejected.

The present finding is in consonance with the findings of the report of **Atoum and Al-Momani (2018)** and **Caprara, Vecchione, Alessandri, Gerbino and Barbaranelli (2011)** mentioned in the chapter two.

4.3.4 Objective 4

To compare the mean scores of the life skill scores of pupil teachers of Science group and Humanities group pupil teachers of RIE, NCERT, Bhopal.

Life Skill Score on the basis of Groups

Descriptive study the life skill score of science group and humanities group pupil teachers of RIE, NCERT, Bhopal is in the following-

Table 4.5 ***Study on Life Skill Score on the basis of Groups***

Types of Groups	Number of Pupil Teacher	Mean (M)	Standard Deviation (SD)
Science Group	120	80.675	11.415
Humanities group	60	78.967	12.118
Total	**180**	**80.106**	**11.648**

If the above values can be represented as a bar chart, the figure will be as in the next page-

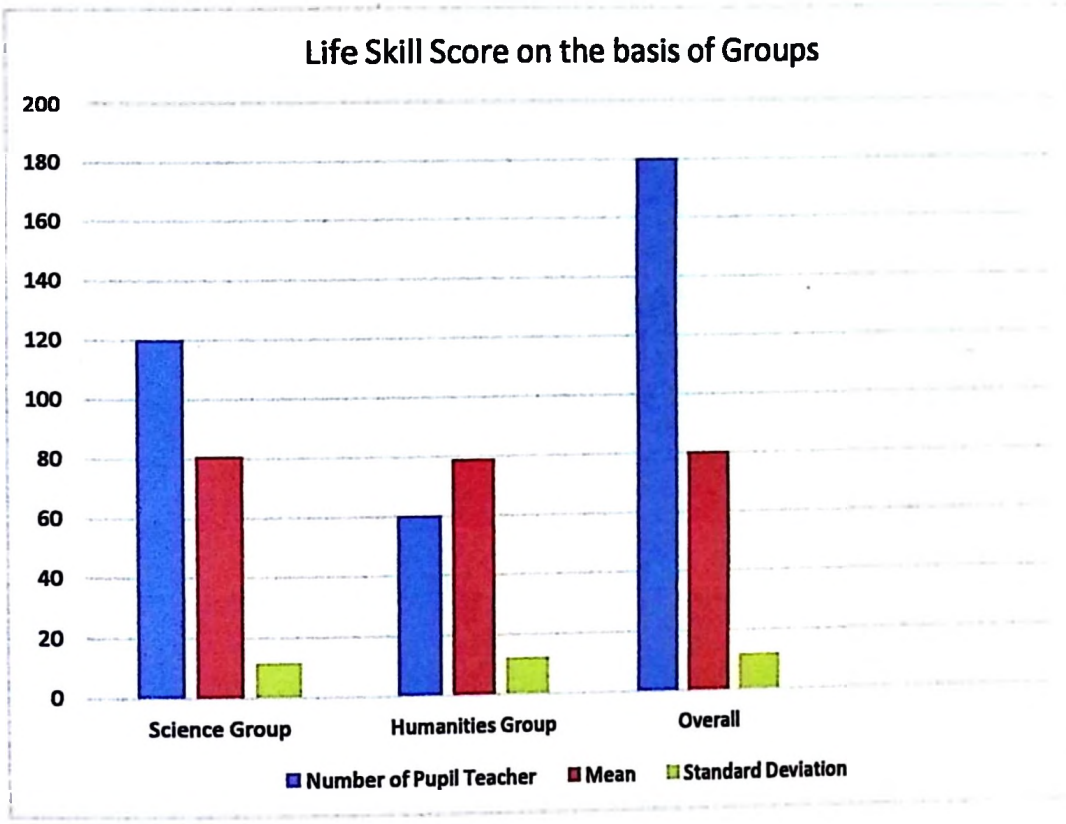

Figure 4.4: ***Bar chart on Life Skill Score on the basis of Groups***

Hypothesis 2 (H02)

There is no significant difference in the mean scores of life skill score between science group and humanities group pupil teachers of RIE NCERT, Bhopal.

Analysis

There are two independent groups" i.e. science group and humanities group. So, independent t– test will be applied on it. The t-score with degree of freedom, p-value and significance level is noted in the next page-

Table 4.6 *Showing differences in Life Skill score in terms of Groups*

Types of Groups	Number of pupil teachers (n1 & n2)	Mean	Standard Deviation	t-score	Degree of freedom (n1-1) + (n2-1)	p-value	Significance at 0.05 level
Science Group	120	80.675	11.415	0.981	178	0.328	Not significant
Humanities Group	60	78.967	12.118				

Interpretation

The table 4.6 says that the result is not significant at 0.05 level. So there is no significant difference in the mean scores of life skill scores between two independent groups i.e. science group and humanities group of RIE, NCERT, Bhopal. Therefore, null hypothesis (H02) is not rejected.

The present finding is in consonance with the findings of the report of **Hasheminasab, Zarandi, Azizi and Zadeh (2014)** and **Balasundari, Edward and Benjamin(2014)** mentioned in the chapter two.

4.3.5 Objective 5

To compare the mean scores of the academic achievement scores of male and female pupil teachers of RIE, NCERT, Bhopal.

Academic Achievement Score on the basis of Genders

To study the life skill score of male and female pupil teachers of RIE, NCERT, Bhopal.

Analysis

Descriptive study of the academic achievement score of male and female pupil teachersof RIE, NCERT, Bhopal is in the following-

Table 4.7 ***Study on Academic Achievement Score on the basis of Genders***

Gender	Number of Pupil Teachers	Mean	Standard Deviation
Male	56	84.214	8.321
Female	124	82.128	8.351
Total	**180**	**82.774**	**8.375**

If the above values can be represented as a bar chart, the figure will be as in the following-

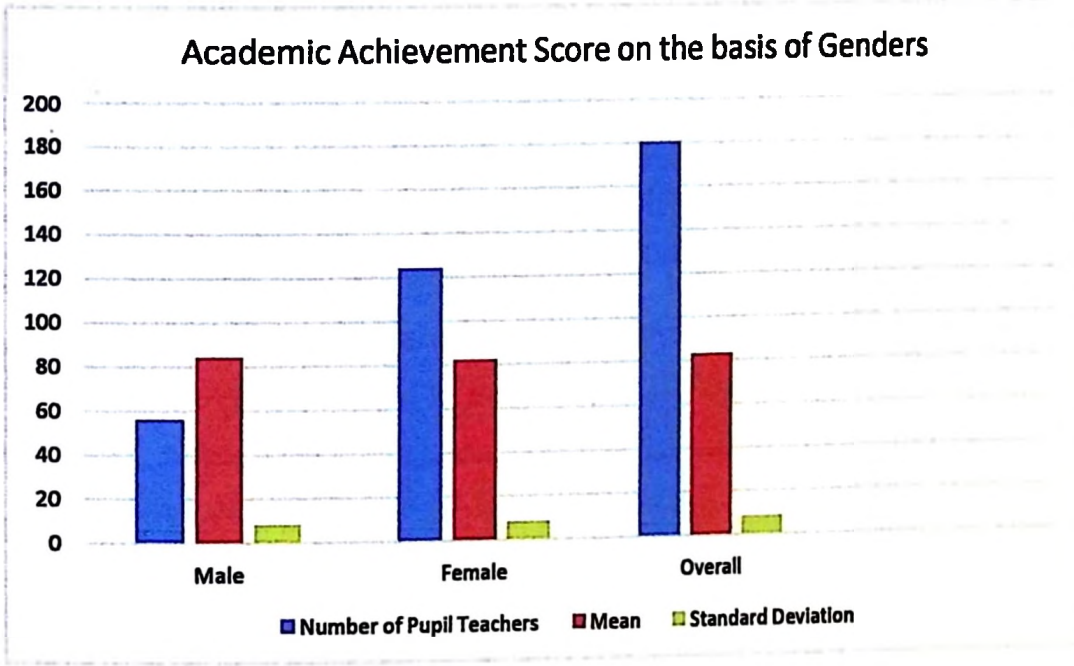

Figure 4.5: ***Bar chart on Academic Achievement Score on the basis of Genders***

Hypothesis (H03)

There is no significant difference between the mean score of academic achievement scores of male and female pupil teachers of RIE NCERT, Bhopal.

Analysis

There are two independent groups" i.e. male and female. So, independent t–test will be applied on it. The t-score with degree of freedom, p-value and significance level is noted in the following-

Table 4.8 ***Showing differences in Academic Achievement score in terms of Gender***

Gender	Number of pupil teachers (n1 & n2)	Mean	Standard Deviation	t-score	Degree of freedom (n1-1) + (n2-1)	p-value	Significance at 0.05 level
Male	56	84.214	8.321	0.015	178	0.988	Not significant
Female	124	82.123	8.351				

Interpretation

The table 4.8 says that the result is not significant at 0.05 level. So there is no significant difference in the academic achievement scores of life skill scores between two independent groups i.e. male and female pupil teachers of RIE, NCERT, Bhopal. Therefore, null hypothesis (H03) is not rejected.

So, the present result argues that the mean academic achievement scores of male pupil teachers (M= 84.214) is higher than that of female pupil teachers (M=82.123).

The present finding is in consonance with the findings of the report of **Hampton and Mason (2003)** and **Lane and Lane (2001)** mentioned in the chapter two.

4.3.6 Objective 6

To compare the mean scores of the academic achievement scores of Science group and Humanities group pupil teachers of RIE, NCERT, Bhopal.

Study of Academic Achievement Score on the basis of Groups

To study the academic achievement score of science and humanities group of pupil teachers ofRIE, NCERT, Bhopal.

Analysis

Descriptive study of the academic achievement score of science group and humanities grouppupil teachers of RIE, NCERT, Bhopal is in the following-

Table 4.9 ***Study on Academic Achievement Score on the basis of Groups***

Types of Groups	Number of Pupil Teacher	Mean	Standard Deviation(sd)
Science Group	120	83.082	8.295
Humanities group	60	82.158	8.569
Total	**180**	**82.774**	**8.375**

If the above values can be represented as a bar chart, the figure will be as in the following-

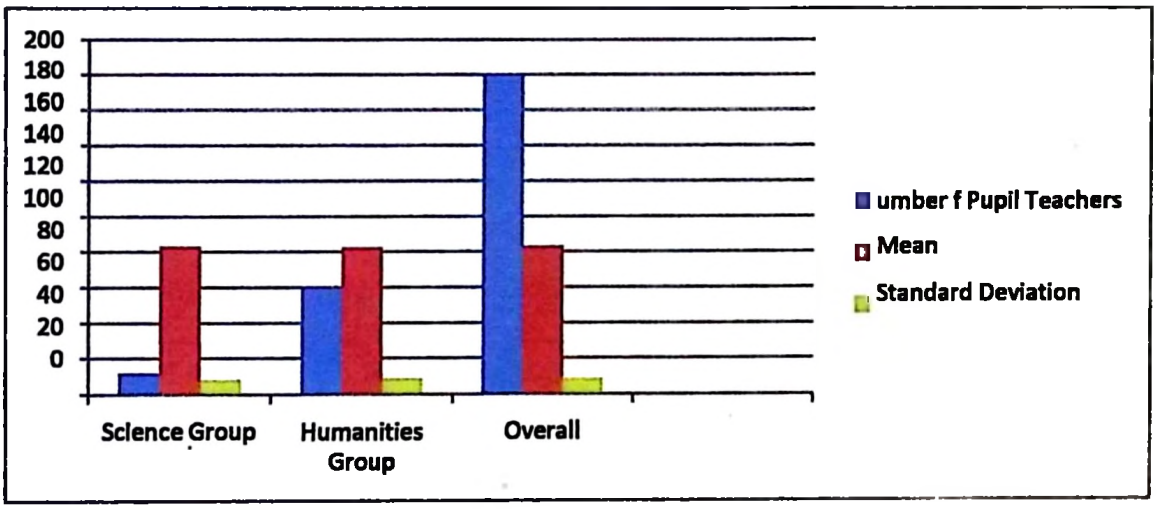

Figure 4.6: ***Bar chart on Academic Achievement Score on the basis of Groups***

Hypothesis (Ho4)

There is no significant difference between the mean score of academic achievement scores of science group and humanities group pupil teachers of RIE NCERT, Bhopal.

Analysis

There are two independent groups i.e. science and humanities group. So, independent t–test will be applied on it. The t-score with degree of freedom, p-value and significance level is noted in the following-

Table 4.10 ***Showing differences in Academic Achievement score in terms of Groups***

Types of Groups	Number of pupil teachers (n1 & n2)	Mean	Standard Deviation	t-score	Degree of freedom (n1-1) + (n2-1)	p- value	Significance at 0.05 level
Science Group	120	83.081	8.295	0.487	178	0.626	Not significant
Humanities Group	60	82.158	8.569				

Interpretation

The table 4.10 says that the result is not significant at 0.05 level. So there is no significant difference in the academic achievement scores of life skill scores between two independent groups i.e. science group and humanities group pupil teachers of RIE, NCERT, Bhopal. Therefore, null hypothesis (H04) is not rejected.

So, the present result argues that the mean life skill scores of science group pupil teachers (M= 83.081) is higher than that of humanities group pupil teachers (M=82.158).

The present finding is in consonance with the findings of the report of **Mohamed and Yunus (2017)** mentioned in the chapter two.

4.3.7 Objective 7

To study the relationship between life skill score and academic achievement scores of pupil teachers of RIE, NCERT, Bhopal.

Hypothesis (Ho5)

There is no significant relationship of life skill scores of pupil teachers of RIE, NCERT, Bhopalwith their Academic Achievements.

Analysis In the tabular form-

Table 4.11 ***Descriptive statistics of Life Skill Score and Academic Achievement Score***

	N	Minimum	Maximum	Mean	Std. Deviation
Life skill score	180	31.00	100.00	80.1056	11.64824
Academic achievement score	180	56.00	97.00	82.7736	8.37493

Table 4.12 ***Correlation***

		Life skill score	Academic achievement score
Life skill score	Pearson Correlation	1	.241**
	Sig. (2-tailed)		.001
	N	180	180
Academic achievement score	Pearson Correlation	.241**	1
	Sig. (2-tailed)	.001	
	N	180	180

Interpretation

Pearson correlation "r" is 0.241, number of sample, N is 180 and Probable Error [(PE) $=0.674((1-r^2)$/square root of N)] is 0.047. Since Pearson correlation "r" is greater than six times of Probable Error (PE) [PE=$0.674((1-r^2)$/ square root of N)] so there is significant relationship between the variables. Correlation issignificant at the 0.01 level (2-tailed). There is slightly positive correlation that means higher score of life skill approaches high score in academic achievement.

4.4 Summary

This chapter shows that the pupil teachers who are good at life skills or using life skills as a partof their behaviour they get high scores also in their professional degree courses, which is taken as academic achievement in this chapter.