CHATPER IV
DATA ANALYSIS AND INTERPRETATION

The purpose of this research was to enhance reading skills of preschoolers of Ahmedabad city. Preprimary Government schools were approached for the permission for the data collection. Nagar Prathmik Shikshan Samiti AMC-run Naranpura Public School in Sola, Ahmedabad city agreed and allowed the researcher to collect data as well integrate the reading skills among preschoolers.

This chapter presents the findings of the study based on the methodology applied by the researcher to gather information. Using quasi-experimental research design, data were collected through pre-test and post-test on experimental and control group. Experimental group was given the intervention which included the research-based effective strategies and activities for reading skills enhancement. Whereas, no intervention was implemented for the control group.

The responses given by pre-schoolers were recorded on worksheets and scoring was done based on the standardised scoring system of the DIBELS Next tool. The scores of pre-test and post-test assessments of both Experimental and Control groups were entered into Microsoft Excel sheet. The data were coded and imported into SPSS 24.0 software for further data analysis.

DIBELS Next tool was used in Pre-test and Post-test to measure the effect of the intervention. DIBELS Next tool measures Reading Skills especially, Phonological Awareness/Phonemic Awareness and Phonics through four types of Fluencies – First Sound Fluency (FSF), Phoneme Segmentation Fluency (PSF), Letter Naming Fluency (LNF) and Nonsense Word Fluency (NWF) for preschoolers. The detailed explanation is given about these Fluencies and how they are linked with the main Reading Skills, in the previous chapter.

The data were collected using purposive sampling, the research design was quasi experimental and the Mann-Whitney U-test was calculated on the post test scores of the control group and experiment group through SPSS 24.0

4.1 STUDENT PROFILE

40 students were selected from the senior kindergarten class of Naranpura Public School, Sola.

Table 4.1 Student Profile

	EXPERIMENTAL GROUP		**CONTROL GROUP**	
Sr. No.	Gender	Age	Gender	Age
1	Boy	4.9	Girl	4.2
2	Boy	4.5	Girl	4.5
3	Girl	4.5	Girl	4.5
4	Boy	4.7	Boy	5
5	Girl	4.8	Girl	5
6	Girl	4.5	Boy	5
7	Girl	5.1	Boy	5.1
8	Boy	5	Girl	4.6
9	Boy	5	Girl	4.8
10	Girl	4.8	Boy	4.5
11	Boy	4.6	Boy	5.1
12	Girl	4.5	Girl	4.6
13	Girl	4.5	Boy	4.6
14	Boy	4.9	Boy	5.1
15	Boy	5.2	Girl	5
16	Boy	5.2	Girl	4.8
17	Girl	5.2	Girl	4.5
18	Boy	5	Boy	5
19	Boy	4.8	Girl	5.2
20	Boy	4.7	Boy	4.9

Table 4.1 shows Gender-wise and Age-wise distribution of the students from the Experimental and Control Group. 20 students were distributed in to two groups as described above.

4.2 WILCOXON SIGNED RANK TEST BETWEEN PRE-TESTS AND POST-TESTS OF EXPERIMENTAL GROUP

TABLE 4.2Wilcoxon Signed Rank Test Between Pre-Tests and Post-Tests of Experimental Group

DIBELS Factors	Pre-Test / Post-Test	N	Mean	SD	Z	Sig. (2-tailed)
First Sound Fluency (FSF)	Pre-Test	20	3.03	4.69	3.93	0.01
	Post-Test	20	7.30	5.19		
Phoneme Segmentation Fluency (PSF)	Pre-Test	20	1.00	2.83	3.93	0.01
	Post-Test	20	6.05	3.53		
Letter Naming Fluency (LNF)	Pre-Test	20	11.35	10.09	3.93	0.01
	Post-Test	20	17.35	11.86		
Nonsense Word Fluency (NWF)	Pre-Test	20	1.38	2.63	3.94	0.01
	Post-Test	20	7.35	3.08		

Table 4.2 shows the Wilcoxon Signed Rank Test between the pre-test and post-test of the experimental group. It can be derived from above table that there is a significant difference found between the pre-test and post-test among the factors of DIBELS factors – First Sound Fluency (Z = 3.93, p = 0.01), Phoneme Segmentation Fluency (Z = 3.93, p = 0.01), Letter Naming Fluency (Z = 3.93, p = 0.01), and Nonsense Word Fluency (Z = 3.93, p = 0.01). Hence, it can be interpreted that intervention to enhance the reading skills of preschoolers have been found effective which is also explained by the mean differences of four DIBELS factors - First Sound Fluency (Pretest (m = 3.03, SD = 3.59) – Post-test (m = 7.30, SD = 5.19), Phoneme Segmentation Fluency (Pretest (m = 1.00, SD = 2.83) – Post-test (m = 6.05, SD = 3.53),, Letter Naming Fluency (Pretest (m = 11.35, SD = 10.09) – Post-test (m = 17.35, SD = 11.86),, and Nonsense Word Fluency (Pretest (m = 1.38, SD = 2.63) – Post-test (m = 7.35, SD = 3.08).

TABLE 4.3 Description of Experimental Group Ranks

DIBELS FACTORS	N	Mean Rank	Sum of Ranks
First Sound Fluency (FSF) PRE - POST	Negative Ranks	0	0.00
	Positive Ranks	20	10.50
	Ties	0	
	Total	20	
Phoneme Segmentation Fluency (PSF) – PRE-POST	Negative Ranks	0	0.00
	Positive Ranks	20	10.50
	Ties	0	
	Total	20	
Letter Naming Fluency (LNF) – PRE-POST	Negative Ranks	0	0.00
	Positive Ranks	20	10.50
	Ties	0	
	Total	20	
Nonsense Word Fluency (NWF) PRE-POST	Negative Ranks	0	0.00
	Positive Ranks	20	10.50
	Ties	0	
	Total	20	

Table 4.3 shows the second section of the Wilcoxon Signed Rank Test. Positive and Negative ranks were calculated for pre-test - post-test of all four DIBELS fluencies. It is evident here that positive ranks are higher (10.50) than the negative ranks (0.00) in all four DIBELS fluencies. Hence, it can be interpreted that there is a positive effect of the intervention on all preschoolers of the experimental group.

4.3 WILCOXON SIGNED RANK TEST BETWEEN PRE-TESTS AND POST-TESTS OF CONTROL GROUP

Table 4.4 Wilcoxon Signed Rank Test Between Pre-Tests and Post-Tests of Control Group

DIBELS Factors	Pre-Test / Post-Test	N	Mean	Std. Deviation	Z	Sig. (2-tailed)
First Sound Fluency (FSF)	Pre-Test	20	2.83	2.46	3.20	0.10
	Post-Test	20	1.45	1.57		
Phoneme Segmentation Fluency (PSF)	Pre-Test	20	11.03	10.36	3.02	0.13
	Post-Test	20	1.40	2.60		
Letter Naming Fluency (LNF)	Pre-Test	20	1.75	1.59	3.72	0.16
	Post-Test	20	0.55	0.76		
Nonsense Word Fluency (NWF)	Pre-Test	20	4.75	5.50	2.03	0.11
	Post-Test	20	0.50	0.83		

Table 4.4 shows the Wilcoxon Signed Rank Test between the pre-test and post-test of the control group. It can be derived from above table that there is no significant difference found between the pre-test and post-test among the factors of DIBELS factors – First Sound Fluency (Z = 3.20, p = 0.10), Phoneme Segmentation Fluency (Z = 3.02, p = 0.13), Letter Naming Fluency (Z = 3.72, p = 0.16), and Nonsense Word Fluency (Z = 2.03, p = 0.11). Since, there was no intervention given to the preschoolers of the control group, there was no significant difference found in pre-test and post-test scores of DIBELS Next fluencies of the control group.

Table 4.5 Description of Control Group Ranks

		N	**Mean Rank**	**Sum of Ranks**
First Sound Fluency (FSF) PRE - POST	**Negative Ranks**	14	8.18	114.50
	Positive Ranks	1	5.50	5.50
	Ties	5		
	Total	20		

Phoneme Segmentation Fluency (PSF) – PRE-POST	**Negative Ranks**	11	6.00	66.00
	Positive Ranks	0	0.00	0.00
	Ties	9		
	Total	20		
Letter Naming Fluency (LNF) – PRE-POST	**Negative Ranks**	18	9.50	171.00
	Positive Ranks	0	0.00	0.00
	Ties	2		
	Total	20		
Nonsense Word Fluency (NWF) PRE-POST	**Negative Ranks**	5	3.00	15.00
	Positive Ranks	0	0.00	0.00
	Ties	15		
	Total	20		

Table 4.5 shows the second section of the Wilcoxon Sign Rank Test. Positive and Negative ranks are calculated for pre-test - post-test of all four DIBELS fluencies of the control group. It can be explained that positive ranks are lesser than the negative ranks in all four DIBELS fluencies - First Sound Fluency (Negative Ranks – 8.18; Positive Ranks – 5.50), Phoneme Segmentation Fluency (Negative Ranks – 6.00; Positive Ranks - 0.00), Letter Naming Fluency (Negative Ranks – 9.50; Positive Ranks - 0.00) and Nonsense Word Fluency (Negative Ranks – 3.00; Positive Ranks - 0.00). Hence, it can be interpreted that there was no positive/significant effect of the intervention on all preschoolers of the control group.

4.4 MANN-WHITNEY U-TEST BETWEEN POST-TESTS OF EXPERIMENTAL AND CONTROL GROUP FOR DIBELS FACTORS

Table 4.6 Mann-Whitney U-Test Between Post-Tests of Experimental and Control Group for DIBELS Factors

DIBELS Factors	N	Mean	SD	Mann-Whitney U	Z	Sig. (2-tailed)
First Sound Fluency (FSF)	40	4.53	- 4.72	37.00	-4.45	0.01
Phoneme Segmentation Fluency (PSF)	40	3.30	3.76	13.50	-5.13	0.01
Letter Naming Fluency (LNF)	40	11.05	11.13	53.50	-3.96	0.01
Nonsense Word Fluency (NWF)	40	3.93	4.12	13.00	-5.15	0.01

Table 4.6 shows the Mann-Whitney U-test between post-tests of the experimental and control group. It can be explained from the above table that there is a significant difference found among the scores of post-tests of the experimental and control group for all four DIBELS fluencies - First Sound Fluency ($z = 4.45$, $p = 0.01$), Phoneme Segmentation Fluency ($z = 5.13$, $p = 0.01$), Letter Naming Fluency ($z = 3.96$, $p = 0.01$), and Nonsense Word Fluency ($z = 5.15$, $p = 0.01$).

TABLE 4.7 RANK TABLE

DIBELS Factors	Experimental /Control	N	Mean Rank	Sum of Ranks
First Sound Fluency (FSF)	Experimental Group	20	28.24	593.00
	Control Group	20	11.95	227.00
Phoneme Segmentation Fluency (PSF)	Experimental Group	20	29.36	616.50
	Control Group	20	10.71	203.50
Letter Naming	Experimental Group	20	27.45	576.50

Fluency (LNF)	Control Group	20	12.82	243.50
Nonsense Word Fluency (NWF)	Experimental Group	20	29.38	617.00
	Control Group	20	10.68	203.00

Table 4.7 shows the rank table of the Mann-Whitney U test. The significant difference of table 4.6 can be supported by comparing the mean ranks of the experimental and control group of DIBELS next fluencies - First Sound Fluency (Experimental = 28.24, Control = 11.95), Phoneme Segmentation Fluency (Experimental = 29.36, Control = 10.71), Letter Naming Fluency (Experimental = 27.45, Control = 12.82), and Nonsense Word Fluency (Experimental = 29.38, Control = 10.68). Hence, the difference of mean scores can be explained in the experimental and control group where control group mean scores are lesser than the experimental group.

4.5 FINDINGS OF THE STUDY

On the basis of the analysis and interpretation of the data gathered in this study, following findings can be drawn.

- The intervention developed for the enhancement of the reading skills for English language was found effective for the Experimental Group. The Alphabetic knowledge was introduced, first the upper case and then lower case alphabet letters. They were written on the blackboard/magnetic board by the investigator. Everyday phonetic alphabet song was played on the laptop which the students learned quickly and sang along.
- There was not a significant difference found in the reading skills of English language of senior KG students of the Control Group.
- There was a significant difference found in the phonological awareness and phonemic awareness of the Experimental group of senior KG students due to the intervention programme. Phonetic sounds of letters - first, medial, and last sound of three letter CVC words were introduced. Also, activities for phoneme segmentation of words, blending of letters were carried out. Games like " I Spy ", where the researcher would say, "I spy something that begins with the sound /b/". Students would look around the classroom for an item that begins with that sound. Another activity which involved sorting of pictures or objects – for example, a group of pictures or small objects that

began with /t/ , like ‘tub’ and /d/, like ‘dog’, and then students were asked to sort these pictures by their beginning sound.

- There was a significant difference found in the phonics of senior KG students due to the intervention programme. In the intervention programme, soft and hard sounds of letters, diagraphs, diphthongs, blended letter sounds, long vowels and short vowels were taught in a fun way.
- There was a significant difference found in the first-sound fluency and phoneme segmentation fluency of senior KG students due to the intervention programme. Repeated stories and words drills helped enhance fluency of the students.
- There was a significant difference found in the rhyming words and alphabetical knowledge of senior KG students due to the intervention programme. Regular singing and listening to rhymes on the laptop was a daily activity which students enjoyed. Rhyming games like “ Simon Says, touch the body part that rhymes with ‘land’” (Each student would touch her hand).The short poem *“JohnyJohny Yes Papa”* was also a favourite with the students. The rhyming name game of the students also generated a lot of excitement among the students. Chits with the students’ names and changing the first sound of their names were prepared by the researcher, so after the students learnt rhyming, they could find corresponding rhyming names matching the last sounds with their own names. The three letter CVC words like man-can-fan-pan, rug-bug-pug-mug where the first sound was different but the last two sounds were the same, were also practised.
- There was a significant difference found in the long and short vowel and diagraphs of senior KG students due to the intervention programme.
- There was a significant difference found in the nonsense word fluency of senior KG students due to the intervention programme.
- There was a significant difference found in the vocabulary of senior KG students, especially through visuals, realia, everyday stories and rhymes.

4.6 DISCUSSION

From this chapter, it can be explained that the hypothesis is effectively rejected with the effectiveness of intervention program for pre-schoolers. The intervention programme developed by the researcher had many joyful, learner-centric activities for enhancing the reading skills of Senior KG students. These activities helped develop students’ interest in

reading. The experimental group got enough exposure to LSRW activities and the enhancement of their learning is reflected in the post-test results.

Language is considered a significant tool to transmit thoughts. Neuroscience urges to utilize the 0-6 years of period of a child's life for maximum language input. It is essential that a child begins her schooling equipped with basic reading skills. The researcher strongly feels that the intervention programme helped children break the reading code, and thus managed to instil a sense of confidence to tackle the learning easily and glide in to the primary classes with ease.