

<p style="text-align: center;">CHAPTER FOUR</p> <p style="text-align: center;">RESULTS AND DISCUSSION</p>

4.1 INTRODUCTION

The results of this study will be discussed according to the sub-aims outlined in Chapter Three.

The discussion will include the following:

- i. A comparison of the mean scores obtained for the combined performance of the two groups of participants in both the spoken and the non-spoken modes of response on a test of phonological awareness.
- ii. A comparison of the mean scores obtained for the performance of Group One and Group Two respectively in both the spoken and non-spoken modes of response.
- iii. A comparison of the mean scores obtained for the performance of Group One and Group Two respectively on each of the tasks.
- iv. A comparison of the means and a comparison of the analysis of variance, ANOVA, for the combined groups to ascertain whether the order in which the tasks were presented influenced the results.

The purpose of this study was to explore the validity of eye-gaze as an alternative response mode to answering “Yes/No” questions via speech in a phonological awareness test. As the South African educational system moves towards operationalizing the policy of inclusion, more students with severe disabilities, and in particular those who have LNFS, will be proceeding through the educational bands and thus be required to participate in assessment as part of the accountability criteria set down by the Department of Education (National Department of Education, 2001).

Four Grade One classes were randomly assigned to two groups, namely Group One and Group Two, and twenty-four children were randomly chosen from Group One and Group Two. The reason for using two groups was to ascertain whether the children’s performance on a phonological awareness assessment battery, using both non-spoken and spoken modes of response, was equivalent. The non-spoken mode of response required the children to answer the

questions using eye-gaze only (by looking at the top left hand corner of the E-tran to indicate “Yes”, or by looking at the bottom right hand corner of the E-tran to indicate “No”). The spoken mode simply involved the children responding with a verbal “Yes” or “No”. The two groups were matched according to the reading cohorts of above-average, average and below-average as well as to mother tongue of English First Language or English Second Language.

All forty-eight children answered all ninety questions.

4.2 RESULTS AND DISCUSSION

4.2.1 An Overview of Group One and Group Two on All tasks.

Figure 4.1 provides an overview of the general performance on the two modes of response for Group One and Group Two. The figure depicts the mean scores for Tasks 1a and b, Tasks 2a and b as well as Tasks 3a and b. See Appendix F for specific data.

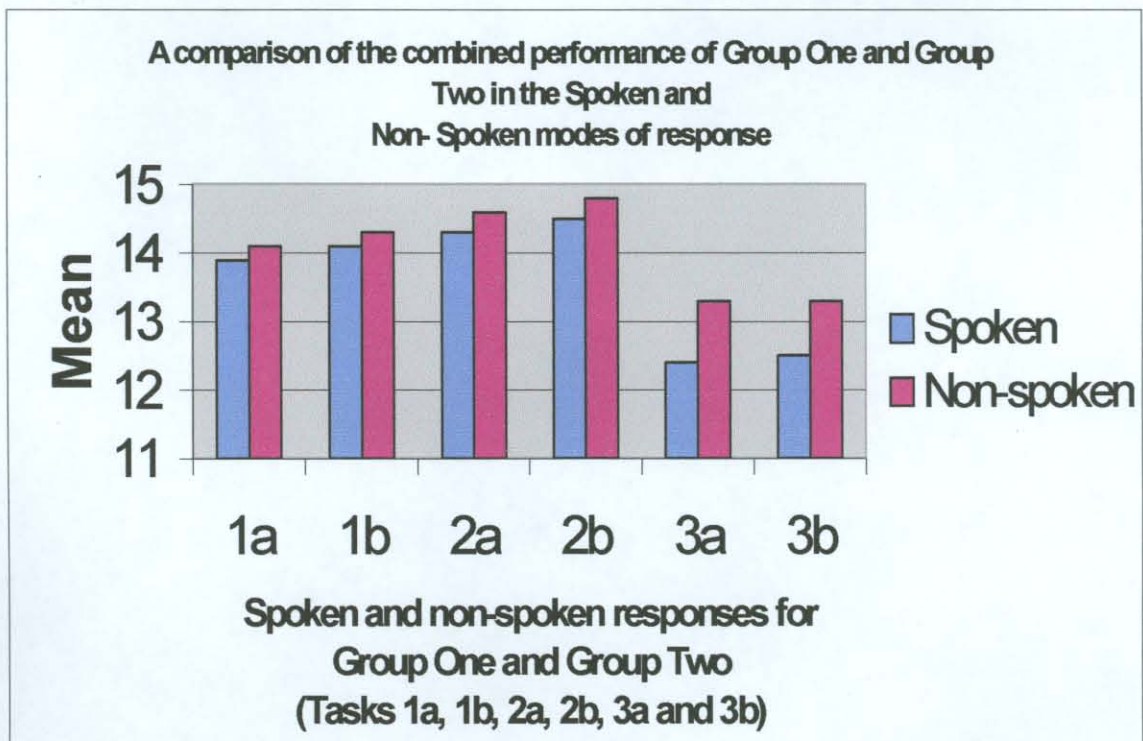


Figure 4.1 An overview of the Mean Scores obtained by Group One and Group Two for Tasks 1a and b, 2a and b and 3a and b.

Figure 4.1 shows that as expected, there are no statistically significant difference at the 5% level of significance. Slightly better scores were consistently obtained for all the non-spoken responses. See Table 4.4.1 to Table 4.4.6 in Appendix F for the Mean, Standard Deviation and p-values which are represented in Table 4.1.

The cognitive and physical demands did not appear to impact either positively or negatively on the performance of these school children as they performed comparably under both conditions. One reason for this finding could be that eye-gaze was in fact a natural response mode for these children (Goossens', 1989) and, as it precedes the verbal response mode in typically developing children, it is therefore comparable in terms of ease of production in relation to the spoken mode of response. It is interesting to note that Tasks 3a and 3b, which are developmentally more difficult than Tasks 1a, 1b, 2a and 2b, rendered higher means (although not statistically significant) for the non-verbal response modes. This may be due to the fact that under difficult conditions and where the cognitive demands are greater, children revert to a previous and more immature level of response mode in order to accurately give the tester their answers.

Another reason for this finding could be the novelty aspect of the response mode, which encouraged greater attention to detail, as well as sustained levels of attention and concentration. There may also have been an element of motivation as the children were asked to help the researcher to ascertain whether answering by means of their eyes would help children who were unable to speak, so that they may also participate in the schooling experience as they do themselves. Further, all the children were volunteers and appeared to have "bought-in" to the testing procedures, as they were informed that they may withdraw at any point, and none did. Although the general performance in both modes was not statistically significant, the consistency in the pattern is evident and warranted further investigation.

4.2.2 Analysis of the Mean for Group One and Group Two on All Tasks.

Figure 4.2 presents an overview of the comparison of the mean for Group One and Group Two on Tasks 1a and b, Tasks 2a and b, Tasks 3a and b.

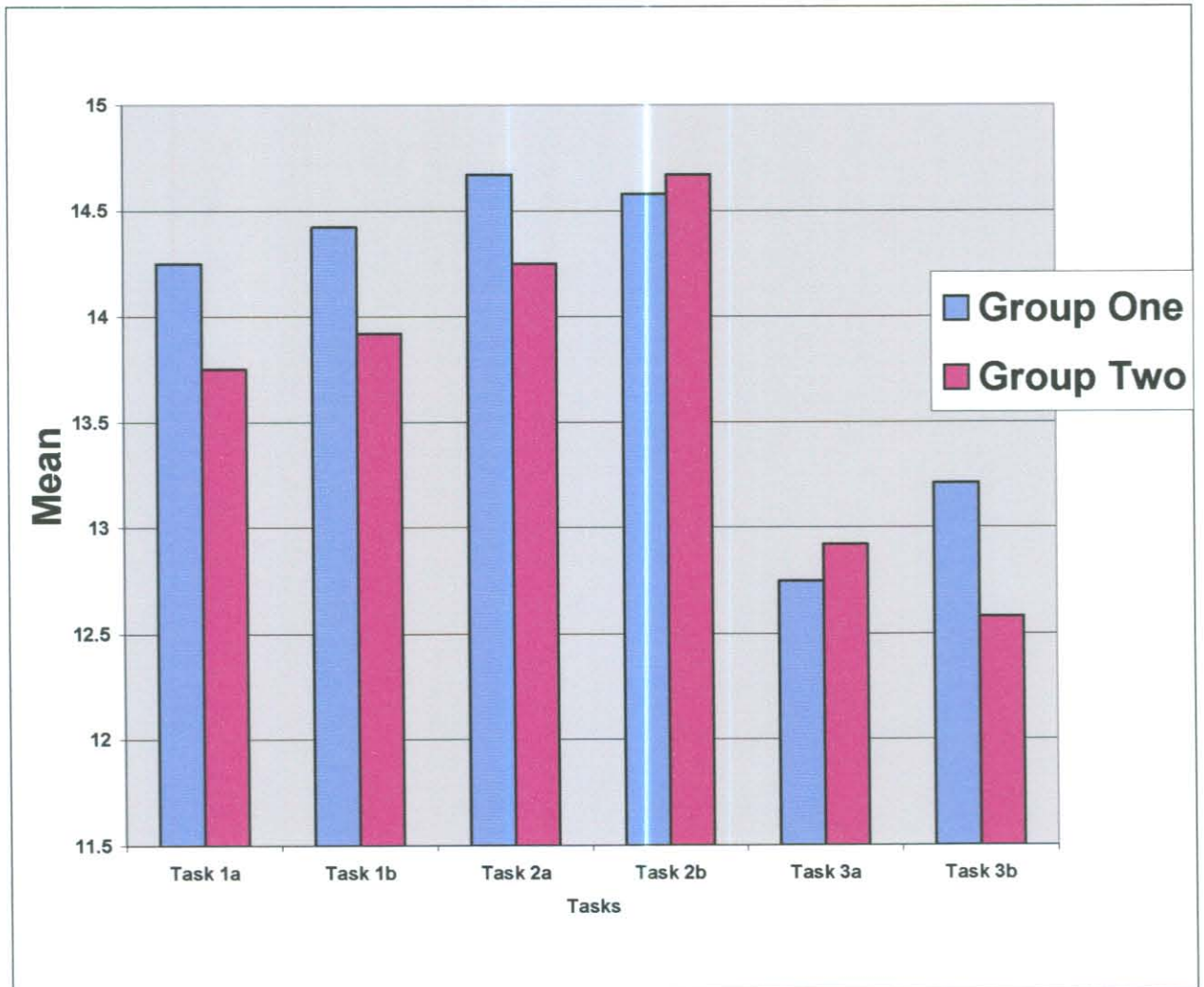


Figure 4.2 Analysis of the Mean for Group One and Group Two on Tasks 1a and b, 2 a and b, 3 a and b

Figure 4.2 indicates that Group One obtained higher mean scores for Tasks 1a, 1b, 2a, and 3b. Group Two obtained higher mean scores for Tasks 2b and 3a. The scores, however, are statistically insignificant at the 5% level of significance. See Table 4.5.1 in Appendix G for the Means and Standard Deviations for the spoken and non-spoken modes of response on all tasks. The results for neither group followed expectations, as Adams (1990) points out that rhyming

knowledge precedes knowledge of identification of phonemes in words. These results indicate that the children were better in recognising the sameness of initial phonemes than identifying whether words rhymed. The results, however, obtained for Tasks 2a and 2b may be as a result of the emphasis of the instruction in the alphabetic script that is taught in the early periods of Grade One. Tasks 3a and 3b show poorer results overall, but this was expected, as recognition of the sameness of final sounds is a more difficult task (Adams, 1990).

4.2.3 Analysis of Spoken and Non-Spoken Modes for Group One and Group Two per Task.

Figure 4.3 provides an overview of the general performance on the two modes of response for Group One and Group Two. The table depicts the mean scores for Tasks 1a and b, Tasks 2a and b as well as Tasks 3a and b.

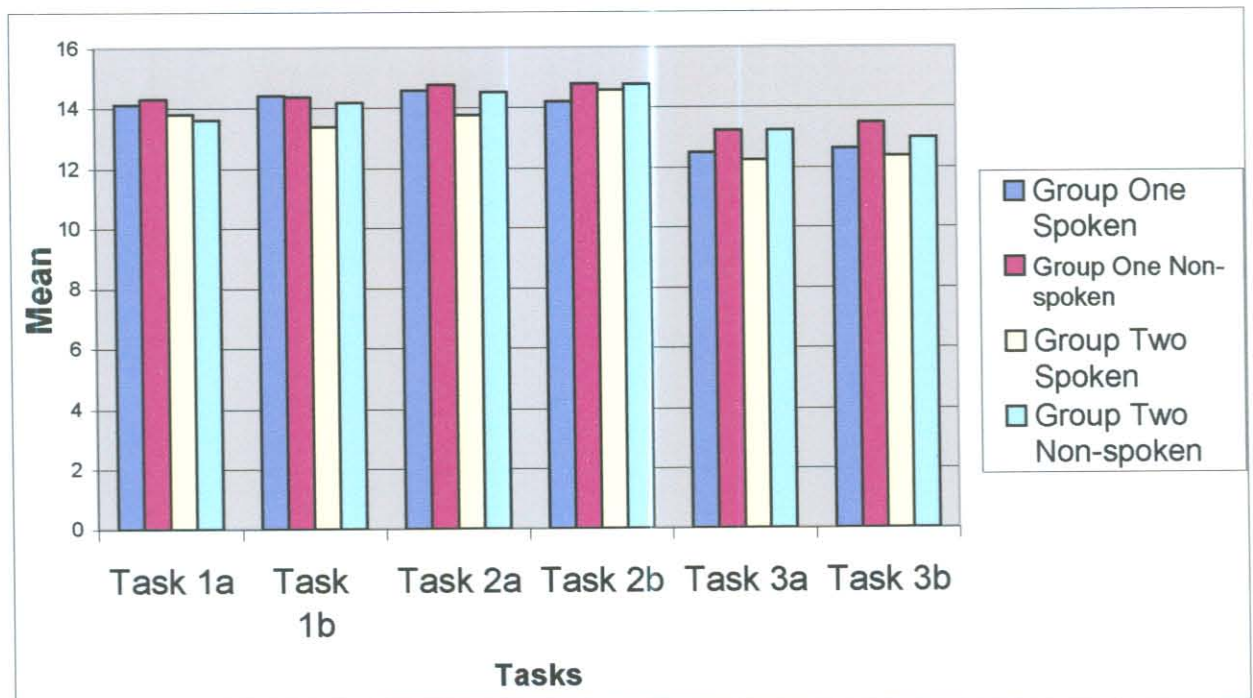


Figure 4.3 Analyses of Spoken and Non-Spoken Modes for Group One and Group Two per Task.

Figure 4.3 indicates that the comparison between Group One and Group Two on both the spoken and non-spoken modes are statistically insignificant at the 5% level of significance. Based on the results obtained in Figure 4.1, these results were expected. Figure 4.1 looked at the combined performance of Group One and Group Two in the spoken and non-spoken modes of response whereas in Figure 4.3 this data is taken one step further and each mode for each group on each

task was investigated. There was, however, no statistical difference at the 5% level of significance. See Table 4.6.1 in Appendix H for the Mean and Standard Deviation for both the spoken and the non-spoken modes of response for Group One and Group Two. Group One fared better on the non-spoken response modes for all tasks except for Task 1b. Group Two obtained higher scores for all the non-spoken tasks except for Task 1a. The order in which the items were presented within each task was randomized and therefore the slight inconsistency of results for Group One on Task 1b and Group Two on Task 1a is inexplicable. Fatigue, levels of motivation, novelty aspects as well as learnability of the task have all been ruled out as the study controlled for task order, and the order in which items were presented.

4.2.2 Analysis of the Order of Tasks Presented for Each Group.

Figure 4.4 shows the overall performance of the mean for the two groups combined for each of the task orders for all 6 tasks. For the full data on the Mean, Standard Deviation and p-Values refer Tables 4.7.1 to 4.7.6 in Appendix I.

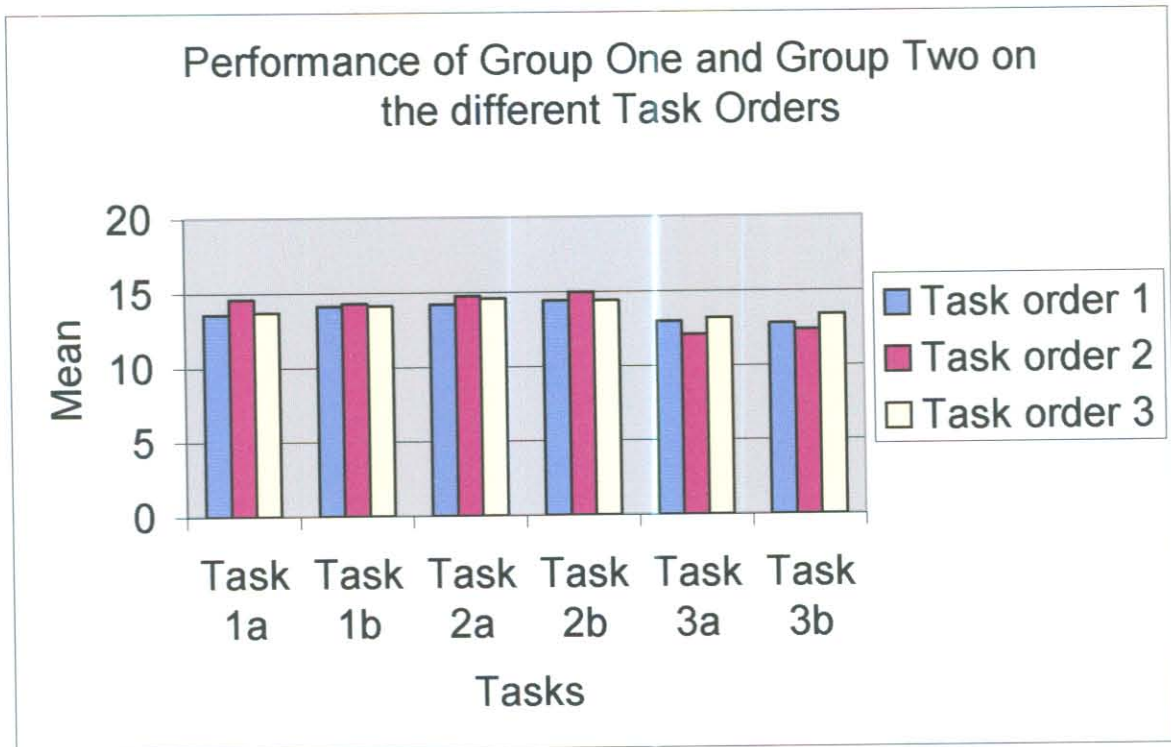


Figure 4.4 The Performance of the Mean for Task Order 1, 2 and 3 for Group One and Group Two.

From the above figure, as well as Appendix I, it is apparent that there was no significant difference at the 5% level of significance for Group One and Group Two on the different task orders.

The children who received the assessment in Task Order 1 belonged to the above-average reading cohort. They received the test in the order of Tasks 1, 2 and 3. It would have been expected that their ability in phonological awareness should have been better than their peers in the average or below-average reading cohorts, yet this is not reflected in the scores obtained for the combined groups. This may be due to the fact that they processed the reading tasks via the direct route, rather than the indirect route as described by Bishop and Robson (1987). The reading scheme used in the participating school is Breakthrough to Literacy, which in the early stages of Grade One focuses on recognition of the whole word within a meaningful sentence as constructed by the children themselves. It may be suggested that the children who are better readers in this school access their reading material primarily via the visual route along with semantic cues.

The average reading cohort on the other hand fared the best in Tasks 1a, 1b, 2a and 2b. This does not follow the suggestion of Adams (1990) that skills in phonological awareness are one of the best predictors of the acquisition of literacy. This is further supported by the fact that the below-average reading cohort fared better than the above-average reading cohort all tasks, even on Tasks 3a and 3b, the most difficult component of the test.

4.3 SUMMARY

The findings of the research were presented in this chapter. The following observations were made:

- i. There was no statistically significant difference in the combined performance between the two groups in both the spoken and non-spoken modes of response.
- ii. There was no statistically significant difference between Group One and Group Two in both the spoken and non-spoken modes of response.

- iii. There was no statistically significant difference between the performance of Group One and Group Two respectively on each task.
- iv. There was no statistically significant difference between the orders in which the tasks were presented.
- v. There was no statistically significant difference between the orders in which the items in each task were presented.