

**A COMPARISON  
OF A NON-SPOKEN RESPONSE MODE  
AND  
A SPOKEN RESPONSE MODE  
IN A TEST OF  
PHONOLOGICAL AWARENESS**

**MAUREEN CASEY**

**In partial fulfilment of the requirements for the  
MASTERS DEGREE IN  
AUGMENTATIVE AND ALTERNATIVE COMMUNICATION  
Centre for AAC  
FACULTY OF ARTS  
UNIVERSITY OF PRETORIA**

**Pretoria  
February 2004**

**OPSOMMING**

Die doel van hierdie studie was die vergelyking van twee verskillende responswyse wat gebruik kan word vir die assessering van kinders met erge gestremdhede en geen of baie min funksionele spraak. Agt-en-veertig tipies ontwikkelende Graad Een kinders is op lukraak wyse in twee groepe verdeel. Daar is van hulle verwag om individueel te reageer op negentig fonologiese bewustheidsvrae d.m.v. 'n gepsroke "Ja/Nee" of 'n onuitgesproke "Ja/Nee" antwoord deur hul keuse met die oë uit te wys (eye-gaze) op 'n uitwys oordragbord (E-tran). Al die kinders het die helfte van die vrae geantwoord in elk van die drie fonologiese bewustheidstake in die gesproke en die ongesproke respons modaliteit. Kinders in Groep Een wat eers op die gesproke en daarna op die ongesproke modaliteit geantwoord het is vergelyk met die kinders in Groep Twee, wat eers op die ongesproke en daarna op die gesproke modaliteit reageer het. Die respons modaliteite is vir orde effek gekontroleer en geanaliseer deur gebruik van ANOVA. Geen statisties betekenisvolle verskille is gevind nie, wat die gelykwaardigheid van die twee respons modaliteite bevestig het. Uitwys met die oë het geen onregverdige voor- of nadele aan die deelnemers besorg nie. Hierdie bevindinge duis daarop dat a.g.v. die vergelykbaarheid van die respons modaliteite, uitwys met die oë gesien kan word as 'n billike en geldige respons modaliteit in die assessering van "Ja/Nee" response by kinders. Hierdie bevinding het betekenisvolle implikasies vir verdere ondersoek na die gebruik van hierdie respons modaliteit by kinders met erge gestremdhede en min of geen funksionele spraak.

**Sleutel terme**

- Aanvullende of alternatiewe kommunikasie
- Uitwys met die oë
- Geen of min funksionele spraak
- Fonologiese bewustheid
- Toets akkommodasies
- Toets geldigheid

**ABSTRACT**

The aim of this study was to compare two different modes of response, which could be used in the assessment accommodations of children who have severe disabilities and with little or no functional speech. Forty-eight typically developing Grade One children from four classes were randomly assigned into two groups. They were individually required to respond to ninety phonological awareness questions using either a spoken “Yes/No” response or a non-spoken “Yes/No” response by using eye-gaze to indicate their choice on an Eye-gaze transfer board (E-tran). All the children answered half of the questions in each of the three phonological awareness tasks presented in the spoken and the non-spoken mode of response. Children in Group One, who answered the spoken mode first and the non-spoken mode second, were compared with children in Group Two, who responded in the non-spoken mode first and the spoken mode second. Other children in Group One, who answered in the non-spoken mode first and the spoken mode second, were compared with children in Group Two, who responded in the spoken mode first and the non-spoken mode second. The response modes were controlled for order effect and analysed using ANOVA. No statistically significant difference was found, which confirmed the equivalence of the two modes of response. Eye-gaze provided the participants in this study with neither unfair advantage, nor unfair disadvantage. Hence, the findings suggest that due to the comparability of the response modes, eye-gaze can be seen as an equitable and valid response mode in the assessment of “Yes/No” responses in children. This finding has significant implications for exploring the use of these response modes on children with severe disabilities and who have little or no functional speech.

**Key terms**

- Augmentative or alternative communication
- Eye-gaze transfer board (E-tran)
- Little or no functional speech
- Phonological awareness
- Test accommodations
- Test validity

### ACKNOWLEDGEMENTS

I would like to extend sincere thanks to the following individuals who contributed to the study, particularly:

- Professor Erna Alant for her patient guidance and support throughout this study. Her considerable insight, wisdom and passion for the field of Augmentative and Alternative Communication is truly inspirational.
- My family for their love, encouragement and continued support.
- Mrs Rina Owen, Department of Computer Sciences, University of Pretoria, for her knowledge, advice and assistance with the statistical analysis.
- My friend Jill Rose who began the journey with me.
- My friends from near and afar who encouraged and offered support throughout the study.
- My friends and colleagues at the CAAC who believed both in me, and the value of the study.
- Mrs Ina Bruwer who conducted the language edit of this study.
- My friend Mrs Marlies Grindlay who conducted the technical edit for this study.
- Mr Ian McLeod, headmaster of Crawford College who without hesitation welcomed me into his school to conduct the study.
- Mrs Karin Horn, HoD of Crawford who supported the process and gave up her office for me to conduct the testing.
- The Grade One teachers of Crawford College for their full cooperation, assistance and interest during the study.
- The children who participated with earnestness and determination.

READING	CONTENTS	PAGE
<b>OPSOMMING.....</b>		1
<b>ABSTRACT.....</b>		II
<b>ACKNOWLEDGEMENTS .....</b>		III
<b>CONTENTS .....</b>		IV
 <b>CHAPTER ONE INTRODUCTION TO THE STUDY .....</b>		<b>1</b>
<b>1.1 PROBLEM STATEMENT .....</b>		<b>1</b>
<b>1.2 DEFINITION OF TERMS.....</b>		<b>4</b>
<b>1.2.1 Alternative Assessment .....</b>		4
<b>1.2.2 Augmentative and Alternative Communication .....</b>		5
<b>1.2.3 Eye-gaze Transfer Board .....</b>		5
<b>1.2.4 Little or No Functional Speech.....</b>		5
<b>1.2.5 Phonological Awareness.....</b>		5
<b>1.2.6 Test Accommodations .....</b>		6
<b>1.2.7 Test Modifications.....</b>		6
<b>1.2.8 Test Validity .....</b>		6
<b>1.3 OUTLINE OF CHAPTERS .....</b>		<b>6</b>
<b>1.4 ABBREVIATIONS.....</b>		<b>7</b>
<b>1.5 SUMMARY.....</b>		<b>8</b>
 <b>CHAPTER TWO LITERATURE STUDY .....</b>		<b>9</b>
<b>2.1 INTRODUCTION .....</b>		<b>9</b>
<b>2.1.1 Aims of this Chapter .....</b>		9
<b>2.2 BACKGROUND.....</b>		<b>9</b>
<b>2.2.1 Assessment.....</b>		9
<b>2.2.2 Assessment of Children with Little or No Functional Speech.....</b>		10
<b>2.2.3 Assessment Reform in South Africa .....</b>		12
<b>2.3 TEST ACCOMMODATIONS, MODIFICATIONS AND ALTERNATIVE ASSESSMENT .....</b>		<b>14</b>

2.3.1 Test Accommodations .....	15
2.4 LITERACY ISSUES: The Importance of Phonological Awareness .....	20
2.5 ISSUES IN PHONOLOGICAL AWARENESS.....	23
2.5.1 Phonological Awareness in Children with LNFS .....	25
2.5.2 Assessment of Phonological Awareness.....	27
2.6 CONCLUSION.....	28
2.7 SUMMARY .....	28
 <b>CHAPTER THREE     METHODOLOGY.....</b>	 29
3.1 INTRODUCTION .....	29
3.2 RESEARCH QUESTION .....	29
3.3 AIMS OF THE STUDY.....	29
3.3.1 Main Research Aim .....	29
3.3.2 Sub-aims .....	29
3.4 RESEARCH DESIGN.....	30
3.4.1 The Research Design.....	30
3.4.2 The Research Steps .....	32
3.4.3 Pilot Study .....	32
3.4.3.1 Objectives.....	32
3.4.3.2 School Selected for the Pilot Study .....	33
3.4.3.3 Procedure.....	33
3.4.3.4 Aims, Methods and Results .....	34
3.4.3.5 Summary.....	35
3.5 MAIN STUDY .....	35
3.5.1 Description of the School and Participants .....	35
3.5.1.1 Selection Criteria for All Participants .....	36
3.5.1.2 Comparability of Experimental Groups.....	37
3.5.2 Material and Equipment used in the Study .....	38
3.5.2.1 Measuring Instruments: Phonological Awareness Test .....	38
3.5.2.2 Equipment.....	40
3.6 DATA COLLECTION PROCEDURE.....	40

3.6.1 Test Procedure .....	40
3.6.2 The Use of an Assistant.....	43
<b>3.7 DATA ANALYSIS AND STATISTICAL PROCEDURES .....</b>	<b>44</b>
3.7.1 Data Capturing .....	44
<b>3.8 SUMMARY .....</b>	<b>45</b>
 <b>CHAPTER FOUR RESULTS AND DISCUSSION.....46</b>	
4.1 INTRODUCTION .....	46
4.2 RESULTS AND DISCUSSION.....	47
4.2.1 Overview of Group One and Group Two on all Tasks .....	47
4.2.2 Analysis of the Mean for Group One and Group Two on All Tasks.....	49
4.2.3 Analysis of the Spoken and Non-Spoken Modes for Both Groups on Each Task .....	50
4.2.4 Analysis of the Order of Tasks Presented for Each Group .....	51
4.3 SUMMARY.....	52
 <b>CHAPTER FIVE SUMMARY, CONCLUSION AND RESEARCH IMPLICATIONS.....54</b>	
5.1 INTRODUCTION .....	54
5.2 SUMMARY OF RESULTS AND INTEGRATION OF RESULTS .....	54
5.3 CRITICAL EVALUATION.....	55
5.4 RECOMMENDATIONS FOR FUTURE RESEARCH.....	57
5.5 SUMMARY .....	58

<b>REFERENCES.....</b>	<b>59</b>
<b>APPENDIX A TOPA AND PALS .....</b>	<b>68</b>
<b>APPENDIX B DATA CAPTURE SHEET .....</b>	<b>78</b>
<b>APPENDIX C CODE FOR DATA CAPTURE SHEET.....</b>	<b>79</b>
<b>APPENDIX D LETTER TO PRINCIPAL.....</b>	<b>80</b>
<b>APPENDIX E LETTER TO PARENTS .....</b>	<b>82</b>
<b>APPENDIX F PERFORMANCE OF GROUP ONE AND GROUP TWO ON TASKS 1A, 1B, 2A, 2B, 3A AND 3B .....</b>	<b>84</b>
<b>APPENDIX G PERFORMANCE OF GROUP ONE AND GROUP TWO IN THE SPOKEN AND NON-SPOKEN MODE ON ALL TASKS.....</b>	<b>87</b>
<b>APPENDIX H PERFORMANCE IN SPOKEN AND NON-SPOKEN MODES R GROUP ONE AND GROUP TWO ....</b>	<b>88</b>
<b>APPENDIX I INVESTIGATION OF THE INTERACTION BETWEEN THE TWO GROUPS ON ALL TASKS.</b>	<b>89</b>

## LIST OF TABLES

<b>Table 3.1</b>	<b>Visual Representation of the Research Design for the Above-Average, Average and Below-Average cohorts.....</b>	<b>30</b>
<b>Table 3.2</b>	<b>Pilot Study: Aims, Methods, Results and Recommendations.....</b>	<b>34</b>
<b>Table 3.3</b>	<b>Visual Representation of Pruning of Participants....</b>	<b>37</b>
<b>Table 3.4</b>	<b>Participant Selection Criteria, Method and Motivation for Inclusion.....</b>	<b>38</b>
<b>Table 3.5</b>	<b>Summary of Questions Posed in the Phonological Awareness Assessment.....</b>	<b>40</b>

## LIST OF FIGURES

<b>Figure 4.1</b>	<b>An overview of the Mean Scores obtained by Group One and Group Two for Tasks 1a and 1b, 2a and b, 3a and b.....</b>	<b>47</b>
<b>Figure 4.2</b>	<b>Analysis of the Mean for Group One and Group Two on Tasks 1a and b, 2a and b, and 3a and b.....</b>	<b>49</b>
<b>Figure 4.3</b>	<b>Analysis of Spoken and the Non-Spoken modes for Group One and Group Two per Task.....</b>	<b>50</b>
<b>Figure 4.4</b>	<b>The Performance of the Mean for Task Order 1, 2 and 3 for Group One and Group Two.....</b>	<b>51</b>