http://researchspace.auckland.ac.nz

ResearchSpace@Auckland

Copyright Statement

The digital copy of this thesis is protected by the Copyright Act 1994 (New Zealand).

This thesis may be consulted by you, provided you comply with the provisions of the Act and the following conditions of use:

- Any use you make of these documents or images must be for research or private study purposes only, and you may not make them available to any other person.
- Authors control the copyright of their thesis. You will recognise the author’s right to be identified as the author of this thesis, and due acknowledgement will be made to the author where appropriate.
- You will obtain the author's permission before publishing any material from their thesis.

To request permissions please use the Feedback form on our webpage. http://researchspace.auckland.ac.nz/feedback

General copyright and disclaimer

In addition to the above conditions, authors give their consent for the digital copy of their work to be used subject to the conditions specified on the Library Thesis Consent Form.
Potential precursors to the development of phonological awareness in preschool children

by

Alison Wendy Arrow

A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy, The University of Auckland, 2007
Abstract

Phonological awareness is one of the most important metacognitive skills needed for literacy development. However, the relationships between preschool phonological awareness and pre-literacy skills are only just beginning to be examined. An important area is the study of potential precursors to phonological awareness. The current research proposed that phonological awareness develops along a continuum of linguistic awareness beginning with syllables and moving towards the smallest level of the phoneme. In the current research, potential precursors were examined in two studies. The first study was an examination of preschool phonological awareness in a sample of 110 New Zealand four-year-old children with no formal literacy instruction but who had a range of pre-literacy skills including 12 children who could read one or more words. The second study examined how literacy instruction influenced the development of phoneme awareness by independently assessing the role of learning to read and the role of learning to spell by teaching non-readers to read 8 CVC words or to spell the same 8 CVC words, but not to read and spell. The results found that rime and phoneme awareness both contributed to a latent variable of phonological awareness and that they each had different potential precursors. Receptive vocabulary explained the most variance in rime awareness with a small association of letter-name knowledge and own-name spelling while rime awareness developed more in children who learnt new words in the intervention. Rime awareness contributed to phoneme awareness along with letter-sound knowledge. When children were taught to read using blending this led to task specific phoneme awareness gains only. Phoneme awareness did not contribute to word-learning in the experimental conditions, with the only learning occurring in the spelling conditions. Letter-name knowledge had a relationship with the acquisition of orthographic representations. Letter-sound knowledge had a relationship with phoneme and letter-level attempts at unfamiliar words. This suggests that children with good letter-name and letter-sound knowledge have both orthographic knowledge and alphabetic strategies available in early word reading and spelling. Results are discussed in terms of their theoretical and practical implications emphasising the role of alphabet knowledge in early literacy acquisition.
Dedication

This thesis is dedicated to Paige and to all children who learn how to read and write.
Acknowledgements

On the completion of this thesis I would like to acknowledge the support and contribution of my supervisors Dr Claire Fletcher-Flinn and Professor Tom Nicholson. Both have helped to shape this thesis and my own thinking in so many different ways. I would also like to acknowledge the Auckland Kindergarten Association and the staff at the kindergartens that so generously allowed me to spend so many hours in their kindergartens working with the children who participated. The time spent in kindergartens has given me a strong appreciation for the work that ECE staff do for the children in their care. Many thanks go to those children and to their parents for allowing the research to be conducted. I would especially like to acknowledge the kindergarten staff for all the cups of coffee and library visits that I went on.

I would also like to acknowledge Rebecca Godfrey for being such an amazing friend and mentor throughout this process. Without her support and the hours spent in discussion about phonological awareness, reading, and schools this thesis would never have come so far. Also all those at RCITL at the School of Education who also helped me shape my identity as a researcher in education. Thanks must also go to my officemate Anna who never ceases to amaze me with her positive energy and offers of childcare.

Finally I’d like to thank my family. Especially Nick, who has always been there and who kept pushing me to go on when I thought I couldn’t do it. Without Nick’s love and support this would never have been completed. And not to forget Paige who has taught me not to procrastinate and continues to provide me with joy.
List of Figures

Figure 1: Example of coarticulation using the word "bag" as an example. (From Liberman, 1971)......................................................................................................................................................11

Figure 2: Simple hierarchical structure of the syllable using the word "dog" as an example......13

Figure 3: Complex hierarchical structure of the syllable with the mono-syllabic word 'stamp' as an example........................................................................................................................................14

Figure 4: An example of the continuum model of increasing phonological awareness shown in Guttman scale form. ........................................................................................................................................20

Figure 5: Proposed progression of phonological awareness development................................24

Figure 6: Possible model of phonological awareness development based on the continuum model of phonological sensitivity and the drivers hypothesised..............................................................48

Figure 7: Single latent variable model of phonological awareness...........................................63

Figure 8: The second CFA model tested with two endogenous variables of rime awareness and phoneme awareness contributing to phonological awareness.................................................65

Figure 9: Single latent exogenous variable model of phonological awareness with standardised beta weights and the error for phonological awareness........................................................................66

Figure 10: The second model of phonological specified by the proposed model of phonological awareness development showing standardised beta weights and the error for phonological awareness..............................................................................................................................67

Figure 11: Distribution of phonological awareness scores on rime and phoneme awareness composite measures.......................................................................................................................................68

Figure 12: Distribution of letter knowledge by letter-name knowledge and letter-sound knowledge....................................................................................................................................................73
Figure 13: Modified version of the proposed model of phonological awareness development. 93

Figure 14: Possible responses a pre-alphabetic reader may make to the word 'look' (adapted from Ehri & Snowling, 2004). .................................................................................................................................................................................. 128
List of Tables

Table 1: Descriptive statistics on children's literacy skills.............................................................59

Table 2: Descriptive statistics on children's phonological awareness.............................................61

Table 3: Intercorrelations between measures of literacy, phonological awareness measures, and control variables .............................................................................................................................62

Table 4: Component loadings of phonological awareness measures in exploratory factor analysis ........................................................................................................................................................64

Table 5: Summary of hierarchical regression analysis for variables predicting rime awareness 
(n=104) ...........................................................................................................................................70

Table 6: Summary of hierarchical regression analysis for variables predicting phoneme awareness (n=110)..........................................................................................................................................72

Table 7: Summary of the hierarchical regression analysis for variables predicting letter-sound knowledge (n=110).........................................................................................................................74

Table 8: Descriptive statistics on control variables, letter knowledge, and phonological awareness for reader and non-reader groups ..................................................................................76

Table 9: Descriptive statistics on control variables, letter knowledge, and phonological awareness for letter-sound groupings.............................................................................................77

Table 10: Differentiation of experimental groups and group labels..................................................144

Table 11: Descriptive statistics for each condition on pretest control variables and letter knowledge.....................................................................................................................................145

Table 12: Words used in training and words used for generalisation testing at posttest..............147

Table 13: Summary of pretest and posttest measures and the order in which they were given ..149
Table 14: Description of training sessions and mean total time across sessions for a selection of the sample.....................................................................................................................................152

Table 15: Mean (SD) Pretest and posttest scores for all conditions with ANCOVA F scores for posttest comparisons.....................................................................................................................158

Table 16: Summary hierarchical regression analysis with posttest phoneme awareness as the dependent variable (n = 64)........................................................................................................................................160

Table 17: Analysis of variance for experimental group performance on word learning..............162

Table 18: Analysis of variance for letter ability group performance on reading and spelling measures .......................................................................................................................................166

Table 19: Mean percentage of error types in reading trained words and generalisation words for letter-name and letter-sound ability groups .........................................................................................................................168

Table 20: Mean percentage of error types in spelling trained and generalisation words for letter-name and letter-sound ability groups .......................................................................................................................................169

Table 21: Intercorrelations between letter knowledge, pretest phonological awareness, and word reading and spelling measures.........................................................................................................................172